Through a Glass Darkly

The Content of Statistical Data on Foreign Direct Investment

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With the advancement of globalization, the role of foreign direct investment has grown rapidly both in the global economy and in individual national economies. As such, their analysis is unavoidable when examining practically any economic phenomenon. The main data source used for this purpose is that on foreign direct investment found in the balance of payments. However, the purpose of a balance of payments is to record how and in what form a country executes various financial transactions with the rest of the world. Thus, such data on direct investment does not necessarily correspond fully to the direct investment content of economic analysis. During the crisis, the increase in the use of transactions aimed at loss reduction and tax optimization by multinational companies has resulted in an even greater gap between the data and the phenomenon being analysed. Therefore the authors would like to emphasize that one needs to be very circumspect when analysing such data.[*]

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Definition and economic content of foreign direct investment

The economic significance of foreign direct investment (FDI)[1] has grown in leaps and bounds over the last few decades. A multitude of books, articles and studies have analysed the evolution of its magnitude, regional and sector changes and the impact on the economies of

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[1] In Hungary, the commonly used term is "working capital". The reason for this is that around the time of the end of communism, there was an intention to clearly differentiate capital inflows of a debt nature, useable for any purpose, repayable with interest, and non-debt type capital inflows, the most important form of which is direct investment meaning production/service activity. The term alludes to the fact that this type of capital provides services and products. However, this expression is not used by Western academic literature; or rather it has a clear ideological association: it is considered Marxist terminology.

home and host countries. Since FDI is largely realized by multinational companies,[2] FDI is used to measure or at least approximate these companies' role in the economic performance of each national economy. Detailed information on FDI is analysed by experts, researchers and policy makers interested in the evolution of the sectoral distribution of foreign-owned companies. Furthermore, the breakdown of FDI by investing countries yields information on the strength, variability and risk of bilateral capital ties. Incoming FDI is also important in the measure it contributes to investments realised in the host economy, and thus to economic growth. In addition, FDI can potentially have a positive impact on the receiving economy, improve the productivity of enterprises there, and the probability of this positive effect can increase with greater influx. FDI can also bring technical, technological, commercial, organizational, management know-how and innovative ideas to the host economy. The probability of this can be correlated with the amount of foreign capital that is arriving or already present in the economy. All this makes it clear that FDI statistics are among the most often used and most important macroeconomic data.

Dunning [1994, p. 5], in his reference work on the subject, defines FDI as follows: foreign direct investment is an investment realised by an investing company outside of the economy, in which it is headquartered but within the company itself. FDI is effectively a package comprising capital, technology, management and manufacturing know-how as well as access to markets. Traditionally, the expansion beyond national borders of a company's activity is realised via foreign direct investment. FDI differs from portfolio investment in that it comprises not only financial capital but also the entirety of the package described above, and in that the investment results in no ownership changes, i.e. decision making control remains with the investor supplying the capital. This definition has the practical consequence that governments and analysts in general consider those foreign investments to be direct where the investing company acquires decisive control or influence in or over a foreign company. According to the IMF's definition (IMF, 2009, p. 99.), direct investment means control or significant influence and long-term ties. Besides financing, a direct investor provides know-how, technology, management and marketing expertise. Companies with direct investment ties (i.e. parent and subsidiary companies) often trade with each other and finance each other's

[2] The group of multinational companies is itself heterogeneous, incorporating differing sizes, activities, strategies and nationalities. (*Dunning–Lundan*, 2008). The interpretation of the term "multinational company" is also quite diverse in Hungarian academic literature and journals (*Czakó,* 2011). These questions are not addressed in this article.

operations. For each country, the flow of capital is bidirectional, therefore we distinguish between inward (IFDI) and outward foreign direct investment (OFDI).

According the OECD's definition (OECD, no year, p. 7.), foreign direct investment is a type of investment where a resident entity in one economy (direct investor) obtains a lasting interest in an entity resident in an economy other than that of the investor. The lasting interest implies the existence of a long-term relationship between the direct investor and the enterprise and a significant degree of influence on the management of the enterprise.

The existence of decisive control or influence is evidently a key component of every definition, and thus of our topic. *Dunning* [1990, p. 5.] opined that there was no complete international consensus on the share of holding that entails decisive control, but countries usually put this between 10 and 25 percent when accounting for foreign direct investment. There are many examples of subsidiaries under 100 per cent ownership whose day-to-day decisions cannot be wholly influenced by the parent, whereas minority or even particularly low shares of holding can enable significant influence. If the criterion is influence or votes, then we must also consider minority shareholding.

For statistical recording, a consensus was eventually reached between the IMF and OECD, and it has become generally accepted that statistically, a holding of 10 percent or greater is considered a direct investment. Beyond this, the IMF distinguishes holdings over 50 percent (control) and holdings between 10 and 50 percent (significant influence). These are thresholds determined by consensus with the aim of standardizing data collection and classification.

In summary, foreign direct investment is – according to the generally accepted definition – a type of investment where a resident entity in one economy (direct investor) obtains a lasting interest in an entity resident in an economy other than that of the investor. The lasting interest implies the existence of a long-term relationship between the direct investor and the enterprise and a significant degree of influence on the management of the enterprise. Its ownership share is 10 percent or greater.

Data on foreign direct investment

The primary data source for foreign direct investment is the “Direct Investments” line found in the financial account of the balance of payments. Its benefit is that it provides figures that are comparable internationally for both stock and flow, for inward as well as outward investments. Yet it is evident from the aforementioned 10 percent rule alone that this data item does not necessarily accurately measure the actual size of FDI. Indeed, this is not the aim of a balance of payments: rather, its main purpose is to account for financial and capital transactions between resident entities of the country in question – i.e. companies and

individuals registered there – and non-residents. Furthermore, data on direct investment may not necessarily be a good measure of the activities of multinational companies within the given country. *Markusen* [2002] and *Lipsey* [2007] among others have warned that balance of payments data do not reflect how much and what multinational companies produce or trade in the given economy. Nevertheless, according to calculations by *Wacker* [2013], FDI stock data generally give a good approximation of the relative size of the activities of multinational companies – although this also depends on the research question being researched. Thus, issues arise when examining investments: *Ali-Yrkkö–Leino* [2014] compared Finnish corporate data with FDI statistics from the balance of payments and demonstrated how annual inward FDI is a bad measure of investments realized in the Finnish economy by foreign-owned companies.

Also, the balance of payments accounts separately for investments made by non-resident entities within the country and those by resident entities made abroad. In both cases, investments are separated into three different components. The first category consists of equity stakes through shares or other ownership, which includes the establishment of new companies (greenfield investment), capital increases in existing companies, as well as acquisitions of firms. The second category includes reinvested earnings, where profits generated and reinvested by a company are recorded. (This is the difference between taxed earnings and dividends paid, calculated over a number of steps involving multiple line items of the balance of payments.) Finally, the "other capital" line is used to account for loans and repayments taken and granted within the group of companies related by common ownership. All data items within a balance of payments are balances: the balance of revenues and expenditure corresponding to assets and liabilities. (For example, capital invested by non-resident entities in the host country via shares and other equity is the balance of capital paid in and capital withdrawn by the entities; i.e. the balance of company establishments and disinvestments or capital reductions. This is why the value of inward FDI, i.e. investments by non-resident entities in the host country can be negative if disinvestments and the reduction of capital exceeds the value of new firm establishments.)

Recording rules and problems

The balance of payments is usually compiled by central banks,[3] who supply data to the International Monetary Fund, which established and maintains the methodology for the balance of payments. In order to be able to perform its functions the IMF required to establish a standardized methodology for balance of payment statistics (standardized concepts, definitions, classifications, accounting principles) (MNB, 2012), as well as to continually adapt it to economic and financial developments. The IMF has required its members to report data regularly since 1948, and beyond these reporting requirements, in 1961 introduced the general principles of balance of payments. In 1977, it had to react to fundamental changes to the international financial system (the collapse of Bretton Woods and its consequences). This is when the fundamental concepts (such as the categories of 'resident' and 'non-resident') were re-clarified, along with accounting principles. In 2003, four working groups were established, which – again responding to significant economic changes – dealt with direct investments, economic and currency unions and general technical issues of the balance of payments, as well as accounting issues concerning reserves. The final version of the new Balance of Payments Manual (BPM6) was published on the IMF website in early 2010 (IMF, 2010). (Reporting on this basis begins in 2014 in the European Union and thus also in Hungary.)

Today, there are established international recording standards for foreign direct investment, yet there are substantial issues concerning the interpretation of the data. This is because issues can arise not only from differences in recording but also from the increasing complexity of the observed phenomena and that of global economic processes and capital flows in general.

At lower levels of globalisation, when capital flows were restricted in many countries, accounting was relatively simple: an investor had to apply to a competent authority of the host country for a permit in which several particulars of the intended investment had to be submitted. Thus the authority issuing the permit could request the value and size of the intended investment, the intended activity, the headquarters of the investing company and the intended ownership share. In spite of this, FDI data was burdened with several problems that, by the 1980s, had been pointed out by numerous experts, among them *Dunning* [1994] who lists many of these. The problems are best demonstrated by inherent differences in the data of host and home countries. For example, according to data from Eurostat, German sources

[3] In a few cases, the compilation of the balance of payments is assigned to the office of statistics or the ministry of the economy. Even if formally one institution is responsible for this, it is typical for diverse organizations to collaborate in the collation and verification of data. For more detail see: IMF [2004*b*].

registered 512 billion ECU of direct investment in Italy from Germany in 1988, while Italian sources put this figure at 335 billion ECU. In the case of the Netherlands and France, one country's reports show the Netherlands investing 195 million ECU in 1998, while the other put this at 857 million ECU (*Dunning*, 1994, p. 10.). What could be the causes of these significant differences? According to investigations (see: *Dunning* 1994, p. 10.) one of the greatest issues arose from differences in accounting methodology. In some countries, reporting was mandatory, while in others, it was done voluntarily. In some states, certain data was secret and therefore omitted from official FDI figures. Differences in investment values could also arise from foreign exchange differences, discrepancies between the book value and market value of companies, cross-border transfer pricing and many other factors.[4]

Even back then, at lower levels of globalisation it was problematic to determine the nationality of investing multinational companies, i.e. the source country of inward investment. Although the public identifies Nokia as Finnish, Volvo as Swedish and Siemens as German, the shares of these and other major multinational companies are traded on the world's largest stock exchanges, and are partially or wholly (usually diversely) foreign owned, their boards are multinational and an ever greater portion of their activities are conducted outside the country of their headquarters. Often, joint ventures are formed, or the investment is done through a subsidiary operating outside the country of headquarters, as in the case of Siemens, whose investment in Hungary was realised through its Austrian subsidiary. Furthermore, these companies may be bought out by investors from other developed countries (e.g. Microsoft in the case of Nokia), or developing countries (e.g. Geely Automobile of China in the case of Volvo), thereby fundamentally altering the ownership structure and nationality of the owner.

Starting with the last decade of the twentieth century, globalization has been accelerating rapidly. The end of bipolar world order, the IT revolution, the spread of the internet, the

[4] This problem also exists in the present day. UNCTAD in its 2011 World Investment Report (UNCTAD, 2011, p. 6.) published a detailed diagram about the difference between globally reported inward and outward FDI flows. The discrepancy occurred practically every year. The largest was in 2007, when the figure reported for outward flows exceeded the number registered for inward flows by 204 billion dollars. There is no consistent trend in whether inward FDI (IFDI) or outward FDI (OFDI) would be greater, although in the early 2000s, IFDI was greater, whereas in the post-crisis period, OFDI was larger. UNCTAD still considers the primary reason for the discrepancies to be accounting differences between countries, exchange rate differences in the currencies used for accounting and the increasing complexity of the nature of FDI. It must be mentioned that due to technical reasons the stock of inward FDI (IFDI) in a particular country can be better measured than outward FDI (OFDI). There are naturally more up-to-date and accessible data available on companies (and their equity) that operate within a given country than on their subsidiaries operating in another country.

modernization of freight transport and the continuing liberalization of trade and capital flows has resulted in the expansion of the breadth and depth of globalization. There has been strong acceleration of capital flows in general and direct capital flows in particular. According to data from UNCTAD – which of course faces the same problems as discussed in detail above and therefore serve only as trend indicators – in 1990, the global FDI stock amounted to 2,078 billion USD. This figure increased to 7,511 billion by 2000 and 25,464 billion USD by 2013, i.e. it grew by a factor of twelve over a quarter of a century (UNCTAD, 2014).

The advancement of globalization has a number of aspects that cause FDI data to be less and less able to meet the requirements for the economic analysis of direct investments. One of the most striking effects of deepening globalization is the significant geographic and spatial expansion of Global Value Chains (GVCs). GVCs can encompass all activities of a company, from design through manufacturing all the way to marketing, in the home country and abroad. The fragmentation of manufacturing and its distribution between countries is not a new phenomenon, but one that has accelerated in recent years and the process has been extended to ever more products and even services. Cheaper and more reliable telecommunications, the development of the Internet, PCs, software, and freight transport has increasingly enabled the efficient running of subsidiaries over great distances and has made ever more products tradable. The liberalization of trade and removal of barriers has further reduced the cost of trading, aided by regulatory reforms in the infrastructure and transport sectors (OECD, 2013, p. 9.). Production chains have been augmented by suppliers, strategic alliances and subcontractors along with networks of companies that have formed extremely complex trading and financial ties.

Liberalization of capital flows has enabled rapid, extensive, cross-border capital transfers within networks of companies. Thus, another significant change at the global level has been the increasing activity of multinational companies in the areas of organizational and tax optimization. Multinational companies – within their own network – have formed specialized corporate entities, their own "financial headquarters" or holding companies, through which they can redistribute income earned in the network. These companies are increasingly able to regroup their assets, sales and profits to the subsidiary operating in the location with the most favourable tax environment (*Lipsey*, 2007). Multinational companies can also exploit the benefits of differences between the financial regulations and tax levels of each country. Many of them therefore typically are headquartered in offshore locations or tax havens. Even as early as the 1980s, several multinational companies employed techniques that significantly reduced their tax burden. The mechanism named "Dutch sandwich" essentially meant that as

part of a foreign investment, a Dutch subsidiary was inserted between the home and final host countries. Thanks to the Netherlands having and extensive system of tax treaties and due to Dutch tax rules, the investing company was able to significantly reduce the taxes it had to pay on dividends in the receiving country (*Kahale,* 2011). The "double Irish" strategy allows multinational companies to significantly reduce their corporate tax bills. Here, profits were transferred from a country of higher tax levels to one with lower levels, in this case, Ireland (*Darby–Lemaster,* 2007). Under Irish tax rules, subsidiaries operating outside Ireland do not pay tax on their profits in Ireland. The Irish corporate tax is among the lowest in the developed world and Ireland also boasts an extensive system of tax treaties. US-based software companies were quick to discover this opportunity (e.g. Apple, Adobe, Facebook, Microsoft, Oracle and Yahoo). But there are also manufacturers based in the US that use this technique to significantly reduce their taxes, such as the pharmaceuticals Eli Lilly and Pfizer as well as General Electric and IBM. Gradually, other countries have "caught up" to the Dutch and the Irish. Analysts at the International Monetary Fund noted at the start of the new millennium that inward FDI into certain countries had grown substantially. These countries were typically offshore regions or tax havens, but in other cases they employed tax and financial regulations that benefitted foreign investors. For example, according to IMF estimates, 40 percent of foreign direct investment into Hong Kong between 1998 and 2002 was connected to "round tripping", where an investing company (usually from mainland China) realised an investment in its own country via a Hong Kong-based subsidiary (IMF, 2004*a,* p. 2.). Another similar phenomenon is the so-called transhipment, where a foreign subsidiary is used to carry out foreign investment (*Kalotay,* 2012). (For example, Russian companies investing in Russia via Cyprus are round tripping, whereas their investing outside Russia is transhipment.) Therefore the International Monetary Fund in its Balance of Payments Manual (BPM5) has recommended to its member states that they filter out and report separately the capital flowing through these special purpose companies. One consequence of round tripping and transhipment is that direct and ultimate investing countries are different, leading to some countries being involved in direct capital flows in magnitudes way beyond their real economic significance (e.g. the Netherlands, Luxembourg, Cyprus, Hong Kong, and in our region Austria and Hungary).

All of the above has resulted in the formation of extremely complex capital flow ties between resident and non-resident companies. There is also evidence of transfers between methods of payment. The place of capital paid in the form of permanently held equity or other stakes (e.g. capital increases) is often taken by other forms of capital payment that are more flexible and

repayable in future (debt). The increase in profits of subsidiaries in developing countries has increased reinvested profits in these countries, whereas financial uncertainty in Europe has suppressed equity investment (UNCTAD, 2011, p. 2.).

The crisis of 2008 erupted and took its course in this global economic environment. The crisis heavily impacted the majority of multinational companies, especially in vehicle manufacturing and its supply chain as well as the financial sector. The crisis immediately snowballed through the network of global value chains. Nevertheless, GVCs and the environment of increasingly liberalized capital flows provided multinational companies with many opportunities to reduce losses stemming from the crisis (*Stehrer et al*., 2012, *Sass–Szalavetz,* 2014), which were exploited to a greater degree than in the years before the crisis. These loss reduction techniques further complicated direct capital flows, and inflated the capital flow – considered direct investment according the statistical accounting methodology - with flows, which in many cases are estranged from the economic purpose of foreign direct investment. Determining direct and ultimate investors – i.e. the actual country of origin of the capital – has become increasingly difficult, and thus so has the analysis of the regional breakdown of direct capital flows.

Therefore, the economic analysis of international data on foreign direct investment requires ever greater care. To demonstrate the potential pitfalls, we will use Hungary as a detailed example.

The vulnerability of FDI data with Hungary as example

Hungary was practically the first country in Central-Eastern Europe to open up its economy to foreign investors, and long retained a lead in attracting capital. Not unrelated to this, Hungary also acquired a leading role in the area of outward direct investment, with both Hungarian subsidiaries of multinational companies as well Hungarian-owned investors having made an early move towards foreign markets compared to others in the region. Hungarian FDI stock invested abroad is still among the highest in the region.[5]

Incorporation into global value chains

To begin our analysis of Hungary, let's look at a chart showing direct investments realised by non-residents in Hungary as well as outward direct investments executed by Hungarian residents abroad. (See figure *1.*) According to HNB data, the FDI stock invested in Hungary amounted to 80.1 billion euros at the end of 2013, while the FDI stock invested abroad by

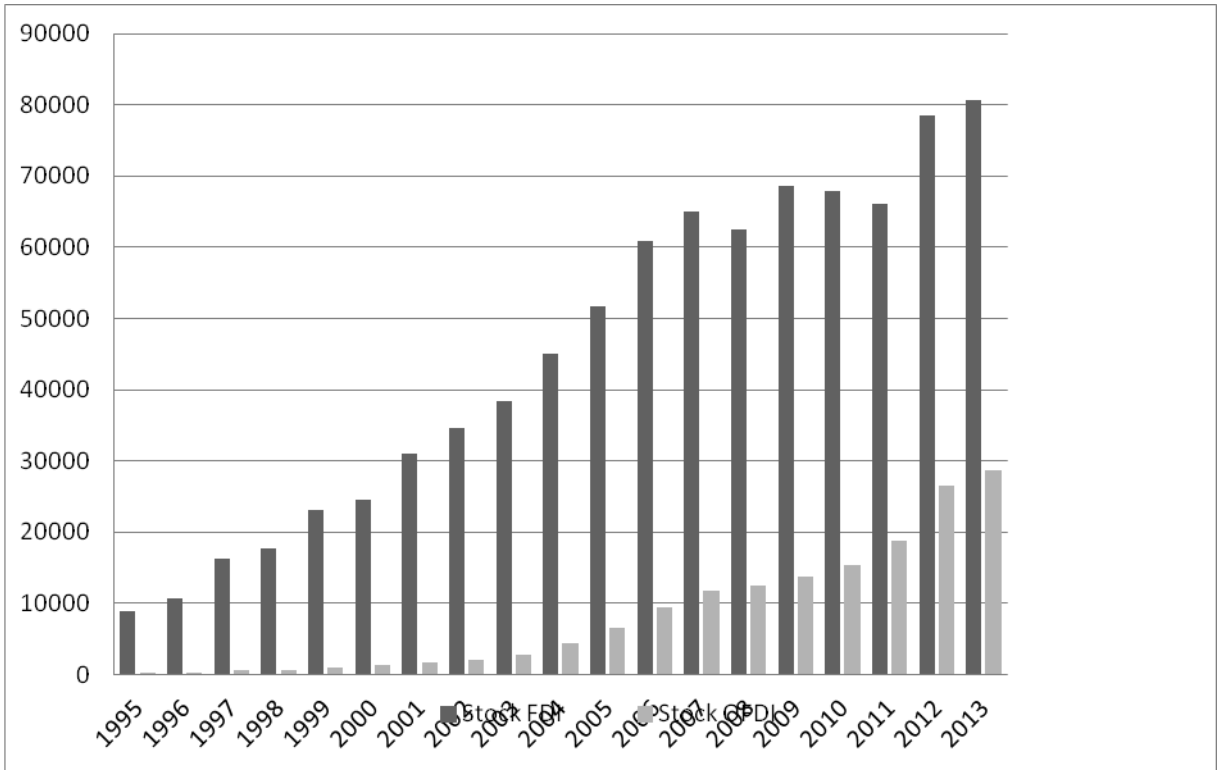
[5] See e.g. *Antalóczy* [2004]; *Antalóczy* et al. [2014]; *Katona* [2013]; on the exceptional importance of external sources in regional comparison e.g. *Bélyácz–Kuti* [2012].

domestic residents totalled 28.8 billion Euros excluding special purpose entities. Compared to 1995, the first figure has grown by a factor of nine, and the second by a factor of 132.

Figure 1

Stock of direct investments by non-residents in Hungary (IFDI) and by Hungarian residents abroad (OFDI) at the end of 2013 according to BPM5 methodology

(Euro millions)*



* Data excluding SPEs, preliminary data for 2013.
Source: Own work based on http://www.mnb.hu/Statisztika/statisztikai-adatok-informaciok/adatok-idosorok/vii-kulkereskedelem/fizetesi-merleg-klfolddel-szembeni-allomanyok/bpm5-modszertan-szerinti-adatok-2013-ig-archiv

Starting around the end of the 1980s – through foreign direct investment – the Hungarian economy gradually became integrated into the international division of labour and became part of international production networks. The methods employed to encourage investment (e.g. industrial free trade zone regulations[6] and tax breaks or reductions for major investors) attracted export-oriented investments and the largest multinational companies to Hungary. As early as at the end of the 1990s, 76 of the world's 100 largest non-financial multinational companies were present in Hungary in some form (*Antalóczy–Sass,* 2002, pp. 55–57). Hungary is deeply embedded into global value chains. (See *Rechnitzer–Smahó,* 2012 for an example on the automotive industry and *Sass–Szalavetz,* 2013 on the automotive and

[6] For greater detail, see: *Antalóczy* [1999].

electronics industries) According to an OECD analysis (OECD, 2013) in 2009, Hungary took 8th place among its member states on the participation index[7] based on the degree of integration into GVCs. (Countries ranked ahead of Hungary were Luxembourg, Slovakia, the Czech Republic, South Korea, Ireland, Belgium and the Netherlands. Luxembourg stands out with its index exceeding 70 percent, while the countries ranked behind it have a participation index just over or just below 60 percent, with small variance between countries.)

The level of integration into international capital flows and world trade is shown in *Table 1*. The leading Hungarian exporters (with the exception of Mol) are subsidiaries of well-known automotive, electronics and pharmaceutical multinational companies, which predominantly produce for export.

Table 1

Top 10 export companies in Hungary in 2012

Company name	Under majority foreign ownership?	Exports/total sales (%)
Mol Magyar Olaj- és Gázipari Nyrt.	Yes	73.2
Audi Hungária Motor Kft.	Yes	99.4
GE Infrastructure CEE Holding Kft.	Yes	98.5
Samsung Electronics Magyar Zrt.	Yes	87.1
Flextronics International Kft.	Yes	91.0
Nokia Komárom Kft.	Yes	95.5
PCE Paragon Solutions Kft.	Yes	98.5
Jabil Circuit Magyarország Kft.	Yes	99.7
Sanofi–Aventis/Chinoin	Yes	88.4
Robert Bosch Elektronika Kft.	Yes	99.9

Source: Own work and calculation based on HVG.

The tax breaks and tax exemptions offered to major investors (eligibility for which only ceased with EU accession, and with previously granted breaks being valid until their expiry), as well as Hungary's rate of corporation tax for offshore companies being highly favourable all the way till 2006, incentivized companies to transfer their profits to Hungary, establish entities in the country and report revenue there. All of this – along with complex production chains and company networks – naturally showed up in the money and capital movements of the balance of payments, often among line items connected to foreign direct investment. Due to the crisis, money and capital movements became even more complex and subject to other motives. Below, we will use a handful of examples to demonstrate why great care must be taken when dealing with the FDI figures in Hungary's balance of payments, and why this data

[7] Participation index: Foreign input + domestically produced input within exports to third countries/gross exports (%). The indicator measures the export share of intermediate products (ones to be processed further).

must not be utilised for analysis unless augmented by corrections, deeper investigation and company-level analyses.

Balance of payments, FDI, special purpose entities, capital in transit

In Hungary, as is usual, it is the central bank's balance of payments statistics that account for direct capital flows. Within the balance of payments, the financial account section registers investments made by non-residents within Hungary and those by residents made abroad, accounted for according to the international standards and broken down by methods of payment as discussed above.

Analysts at the Hungarian National Bank noted while preparing the balance of payments in the first third of the years 2000 – obviously not independently of work carried out by the IMF and the resulting recommendations –, that capital of significant magnitude was moving through Hungary. This capital matches the statistical definition of FDI, but not its economic content. Analysts removed data that did not match this content. Until 2005, these were essentially offshore companies (a legal category), but from 2006, a new category was created based on economic considerations and recommendations by the IMF and OECD. This new category was named "special purpose entities", abbreviated SPE. SPEs are 100 percent foreign owned, the significance of real assets in their balance sheets is negligible in relation to that of financial instruments, and their net foreign financial position is close to zero. Their material costs are negligible, their headcounts are very low (90 to 95 percent employ a maximum of two persons). Their ties with the economy of the host country are insignificant and their primary task and purpose is to execute transactions for tax optimization for their parent company.[8]

Starting in 2006, The Hungarian National Bank published balance of payments statistics both including and excluding special purpose entities. Special purpose entities are primarily involved in the transfer of funds within a company group. Due to moneys flowing through them (the direction and magnitude, of which is controlled by their parent companies), SPEs merely play an intermediary role within the company group and are themselves not actually

[8] SPEs do not yet have an exact definition or delineation, but they do have a number of common features (OECD, 2008), of which we have listed several in connection with Hungarian SPEs. In Hungary, their number is estimated at a few hundred, they are primarily owned by US-based investors/multinational companies. Their existence is justified not only by the relatively favourable Hungarian tax rates, but also the treaty enacted in 1979 between Hungary and the USA eliminating dual taxation (*Koroknai, Lénárt-Odorán,* 2011). In our interpretation, alongside the US subsidiaries, the 7th largest Hungarian company, the Brazilian Fibria shown in *Table 9* can also be classified as an SPE.

targets of direct investment. Nevertheless, relatively large sums are moved through SPEs. A large proportion of SPEs were established in Hungary as a result of the previously favourable offshore regulations (an effective profit tax rate of below 10 percent). These regulations have been revoked in part due to OECD pressure, but a few companies have remained because some other regulatory aspect in Hungary (e.g. favourable taxation of foreign royalties) or somewhere abroad,[9] that makes it worth their while to stay. Many countries may have such entities, but few countries account for them statistically. The fact that this is not a new phenomenon is indicated by UNCTAD data showing that in 2003, of total FDI stock, the following percentages flowed to such special purpose entities in these respective countries: France: 38 per cent, Germany: 23 per cent, Portugal: 20 per cent, USA: 6 per cent. No 2003 data is available for Hungary, but figures are attainable starting in 2006.

Table 2

Stock of direct investments by non-residents in Hungary (IFDI) and of Hungarian residents abroad (OFDI)

(Euro millions, %)

	2006	2007	2008	2009	2010	2011	2012	2013
IFDI stock excluding SPEs	60,876	65,044	62,455	68,608	67,947	66,086	78,488	80,639
IFDI stock including SPEs	91,003	133,420	181,940	184,260	159,129	174,906	187,725	185,230
Share of SPEs within all IFDIs (%)	33	51	66	63	57	62	58	56
OFDI stock excluding SPEs	9,394	11,801	12,485	13,704	15,295	18,834	26,592	28,774
OFDI stock including SPEs	43,378	90,710	134,149	129,994	108,781	126,299	142,027	140,825
Share of SPEs within all OFDIs (%)	462	769	1,075	949	711	671	534	489

Source: Own work and calculation based on HNB data.

Table 2 vividly illustrates that even as early as at the start of statistical data collection, the share of special purpose entities of the total FDI stock was extremely high in an international context.[10] The figures are especially poignant on the OFDI side, since Hungary - having been an economy in transition, which was only integrated into international capital flows later - has relatively low OFDI stock when excluding SPEs. In this sense, the ratio of SPEs rose up to the year when the crisis erupted, then decreased continuously, but even in 2013 it was close to five times the size of OFDI stock excluding SPEs. A similar trend can be observed on the

[9] Alternatively, particular changes in foreign regulations caused Hungarian regulations to become relatively favourable, making it worthwhile to direct money flows through Hungarian subsidiaries.

[10] The distorting effect of SPEs on debt indicators is analysed by *Koroknai–Lénárt-Odorán* [2011].

IFDI side: here, the ratio doubled in the year at the start of the crisis, only slightly decreased subsequently and has exceeded 50 per cent each year. In an international comparison the Hungarian ratios are considered exceptional: only Luxembourg, the Netherlands and Hong Kong have higher indicators for IFDI, whereas we have not found figures even approaching Hungary's for OFDI (See *Table 3.*). We find it probable that other economies in transition exhibit similar phenomena, however, no data was found to support this. (See also: *Hunya,* 2014) *This suggests that Hungary continues to serve as a kind of tax haven for SPEs.*

Table 3

Share of SPEs of the total FDI stock invested in 2009

(Percentage)

Country	Share of direct capital stock	
	IFDI stock	OFDI stock
Cyprus	33	31
Denmark	22	18
France	9	6
Luxembourg	93	90
Netherlands	79	75
Argentina	2	–
Hong Kong, China	66	73
Singapore	34	–

Source: UNCTAD [2012, p. 7.].

In 2012, analysts at the Hungarian National Bank once again noted very high volumes of capital inflows and outflows - outside of special purpose entities – that by statistical definition count towards FDI and were to be shown in this category of the balance of payments. The phenomenon had started in earlier years, therefore following a survey of the processes, data was retrospectively corrected back to 2008. The phenomenon, designated “capital in transit” is a transaction that occurs within a company group (linked through ownership), transiting through a given economy without affecting it. (It is not a “package”; it does not create new production, service capacity or jobs.) We find it likely that Hungary is not the only country where FDI figures are distorted by this factor: e.g. in Luxembourg in 2004, 80 percent of inward FDI was associated with capital in transit and/or SPEs (UNCTAD, 2004). The purpose of using capital in transit is probably the maximization of company profit, minimization of losses and tax optimization.

The phenomenon has been around in Hungary in significant magnitude since the crisis. Its evolution and size – together with total FDI flows and all corrections – are summarized in *Table 4.*

Table 4

Stock of direct investments by non-residents in Hungary (IFDI)

(Annual inflow, euro millions)

	2008	2009	2010	2011	2012	2013
Total direct investment	49,786	3,538	–27,874	16,239	11,205	1,768
Direct investment excluding SPEs	4,191	1,476	1,675	4,131	10,851	2,317
Capital in transit and asset portfolio restructuring	1,081	188	409	2,613	6,935*	534
Direct investment excluding transfer of capital in transit and asset portfolio restructuring	3,110	1,288	1,266	1,518	3,916	1,783

* Of the 6,935 million euro correction, capital in transit amounts to 3,935 million Euros and asset portfolio restructuring amounts to 3,000 million euro. (In other years, the value of asset portfolio restructuring is 0. For more detail on asset portfolio restructuring, see *Footnote 13.*)

Source: Authors' compilation based on HNB data.

The share of capital in transit within FDI inflows excluding SPEs was extremely large (63-64 percent) in 2011 and 2012, and was around 25 percent in the other years studied, which certainly amounts to a notable share. During the economic analysis of FDI, only data excluding the above two items is usable.

It must be added to the economic content of the 2012 numbers that over this year, a significant portion (an estimated 1.4 billion Euros) of foreign direct investment was realised in banks. Parent banks used this method for loss reductions at their Hungarian subsidiaries, thus these investments did not create new capacity or jobs. (Therefore this sum must be subtracted from the 3.9 billion euro if we wish to attain a realistic insight into real inward FDI.)

We must hereby also draw attention to errors in the international data. UNCTAD – whose FDI numbers are used all over the world to analyse direct investment flows – published in 2014's World Investment Report (UNCTAD, 2014, p. 205.) numbers that included capital in transit and asset portfolio restructuring. That is how it is possible that according to their report for example, 2013 saw almost 14 billion dollars of direct investment arrive in Hungary, a figure which for this year, and without any real economic basis, stands far above other new EU member states.

Capital in transit, as its name suggests, not only shows up on the inward side, but also on the outward side (OFDI), strongly distorting data on residents' investments abroad. (See *Table 5.*)

Table 5

Direct investments by residents abroad (OFDI)

(Annual inflow, euro millions)

	2008	2009	2010	2011	2012	2013
Total direct investment	48,472	3,048	–30,812	14,847	9,053	1,781
Direct investment excluding SPEs	1,514	1,348	887	3,141	5,800	1,701
Capital in transit and asset	1,081	188	513	2,687	4,309	533

portfolio restructuring						
Direct investment excluding capital in transit and asset portfolio restructuring	433	1,160	374	454	1,491	1,168

Source: Authors' compilation based on HNB data.

Furthermore, a crucial problem for analysts is that stock data in the HNB's database is – at present – not cleaned of capital in transit and asset portfolio restructuring. Thus both breakdowns by country and by sector contain economically irrelevant data – therefore these numbers are not suitable for analysis and use in models. An important question is whether these data problems occur for any other countries. Based on the favourable regulations, it would be reasonable to assume that through SPEs, Hungary would be a significant location for tax optimization transactions by multinational companies, thus Hungary's FDI data may be more strongly affected in a regional comparison. However, some old EU member states – as we saw - are probably more significantly affected. Still, we must agree with the analysis of *Hunya* [2014], according to which we can surmise that the other countries of Central-Eastern and Southern Europe also have similar data problems, but since their central banks do not prepare and publish detailed statistics broken down into capital in transit, SPEs and asset portfolio restructuring, these issues are less conspicuous.

In the next two sections, we will highlight further problems with sector-industry and national breakdowns and use examples to illustrate why great care must be used when dealing with the FDI figures in the balance of payments.

Sector and industry data problems: Foreign companies' automotive investments in Hungary

Hungary is one of the prime targets of automotive investments in the CEE region. While there is more capacity for manufacturing cars in the other three Visegrád countries, Hungary has also been successful in attracting investment into the industry: Suzuki has been producing cars in the country since 1991, Audi since 1998 and Mercedes since 2012.[11] Furthermore, the presence of foreign automotive suppliers is also significant, e.g. Knorr-Bremse, the Continental group and Robert Bosch. Yet if we seek to find traces of this significant automotive capacity in Hungary's statistics on FDI beyond 2009, we will be disappointed. (See *Table 6.*)

Table 6

FDI stock invested in the manufacturing of vehicles and its share in total FDI stock invested in Hungary and of FDI stock invested in the manufacturing industry

[11]Opel used to assemble cars in Hungary starting in 1991, but gradually transferred this activity to Poland, and today only manufactures engines in Szentgotthárd.

(Percentage)

	2008	2009	2010	2011	2012
FDI into vehicle manufacturing (euro millions)	4,627.7	3,957.1	3,394.1	–1,693.2	2,517.8
Share of total FDI stock (%)	7.41	5.77	5.00	–2.59	3.24
Share of manufacturing industry FDI stock (%)	26.70	22.94	19.55	–17.13	15.91

NB: TEÁOR 08 29–30.

Source: Authors' calculation based on HNB data.

It can be seen that the size of the capital invested in the sector (which boasts significant capacities that increased further in the period analysed due to Mercedes' greenfield investments and supplementary investments by Audi and Opel) decreased between 2008 and 2010, until in 2011, this figure turned negative. (A negative figure in this case has the economic meaning that non-residents divested more from than invested in the industry.) Then for 2012 we find a modest but positive figure for Vehicle Manufacturing. The industry's share of total FDI stock and of manufacturing FDI stock developed accordingly.

Upon closer inspection, we find that one of the significant events underlying the changes to automotive FDI stock were changes in the situation and organization of Audi, the most important automotive investor in Hungary. According to the company's 2012 balance sheet report, in November 2011, the sole owner, Audi AG of Germany apported the shares of its Hungarian subsidiary, Audi Hungária Motor Kft. into Audi Hungária Services Zrt. This latter company, Audi Hungária Services Zrt., commenced operations in Győr in October 2011. Its sole owner is Germany's Audi AG, therefore it is 100 percent German owned. Yet it is a company registered in Hungary and thus a resident from the balance of payments perspective, i.e. its 100 percent owned subsidiary Audi Hungária Motor Kft. no longer counts as foreign owned, but rather domestic (owned by a resident). Hence it does not feature in Hungary's automotive FDI stock. [The principal activity of Audi Hungária Services Zrt. is not car manufacturing but business consulting (shared services and legal advice), and its nominal capital is a mere 200,000 euro. Thus it is recorded as a services FDI company with a relatively low capital base.][12] We also know from the previous section that stock FDI data includes

[12] The situation is complicated by the fact that Audi Hungária Services Zrt., according to its balance sheet, posted 3 billion euro of depreciation in 2012 for Audi Hungária Motor Kft., and simultaneously acquired an equal stake in a Belgian subsidiary of Volkswagen Group Services SA, the latter of course is registered on the outward FDI (OFDI) side. This transaction is marked as asset portfolio restructuring by balance of payments statistics.

capital in transit and asset portfolio transfers, which affect the 2011–2012 figures in particular. Therefore the negative stock figure and its subsequent turning positive in 2012 are impossible to interpret based on this data. We can merely guess when attempting to find economic meaning in the numbers. It is possible that in 2012 part of Mercedes' investment was accounted for, as well as its capital increase and Opel's supplementary investment, and automotive suppliers may also have realised supplementary investments. The crisis has had a powerful effect on domestic automotive suppliers – both Hungarian and foreign owned. Companies that were successful in handling the crisis did so by providing additional services to customers, or shifted to other, more complex activities that, e.g. Chinese and Indian suppliers could not compete with (*Antalóczy–Sass*, 2010). This aspect of crisis management may also have had the effect of attracting foreign capital. Despite the above, we must once again emphasize that based on the data available, it is impossible to analyse foreign investment into Hungary's automotive industry.

Data problems concerning the origin of the investor: US capital in Hungary

It is evident to informed consumers, buyers or those keeping up with domestic economic developments that numerous US-based multinational companies are present in Hungary: most through their products, but a great number also through direct investment and production. However, according to HNB FDI data excluding SPEs, the stock of US investments in the 2000s has been very modest and furthermore decreased significantly over the last 2-3 years. Thus the stock, which between 2008 and 2010 had averaged 2.9 billion euro, dwindled to 1.9 billion euro by 2012. This amounts to just 2.5 percent of total foreign direct investment in Hungary. Even the higher figure of 2.9 billion euro (and the share of the total stock of 4.6 percent) seems low given the number of large American investors and investments in Hungary, let alone the size and share figures for 2012. (See *Table 7.*)

Table 7

Stock of total FDI in Hungary and stock of FDI from the USA

	2008	2009	2010	2011	2012
Total FDI stock excluding SPEs (euro millions)	62,455	68,608	67,947	65,398	77,756
FDI stock from USA excluding SPEs (euro millions)	2,867	2,890	2,965	2,168	1,914
Share of USA excluding SPEs (%)	*4.6*	*4.2*	*4.4*	*3.3*	*2.5*
Total FDI stock including SPEs (euro	181,940	184,260	159,129	173,941	186,665

millions)					
FDI stock from USA including SPEs (euro millions)	956	–111.8	4,049	16,254	13,746
Share of USA including SPEs (%)	*0.5*	–	*2.5*	*9.3*	*7.4*

Source: Authors' calculation based on HNB data.

Examination of the presence of American FDI in Hungary provides an opportunity to review some concrete reasons and motives for why data on the investing country distribution of FDI yields little information on the composition by ultimate investing countries.

Alongside the techniques already mentioned in this article (Dutch sandwich, Double Irish) and investments made via subsidiaries in third countries, during the crisis it has become ever more common for a multinational company to restructure its subsidiaries: even if the parent realised its investments directly, it subsequently delegated control over it to one of its regional subsidiaries, one that is closer to the investment target or one, that is otherwise considered high priority (e.g. due to a more favourable tax environment). Using various sources, we have compiled a list of the largest US-based multinational companies investing in Hungary and we looked at their characteristics from the point of view of the nationality of the investor-owner. Our results are shown in *Table 8.*

Table 8

Top 16 US investments in Hungary in 2012

Rank	Company	Direct owner
1.	GE	Austrian, Dutch
2.	Budapest Bank	USA
3.	Flextronics	Austrian
4.	Jabil	Dutch
5.	Philip Morris	Swiss
6.	Lear	Luxembourg
7.	Alcoa-Köfém	Spanish
8.	Cargill	Dutch
9.	National Instruments	Austrian
10.	Delphi	Austrian
11.	GlencoreGrain	Swiss
12.	Unilever	British
13.	Coca-Cola	Dutch
14.	GM Opel	Spanish
15.	Corning Hungary	Luxembourg
16.	Kimberly-Clark	British

Source: Authors' compilation based on AMCHAM company listings, HVG TOP 500 and the balance sheet reports of companies concerned.

Among our estimated top 16 US subsidiaries, the direct investor was US-based in only one single case; in all other cases, the Hungarian investment was carried out through Austrian,

Dutch, Swiss, Luxembourg-based, Spanish or British subsidiaries. [There may be many reasons for this: in most cases, it is the above-mentioned tax optimization,[13] but another motive may be the US multinational company establishing a European centre, and directing all its European investments from there, or simply the fact that the intermediary subsidiary (e.g. Austrian) is more familiar with the Hungarian investment landscape.] The HNB in its balance of payments statistics reports the nationality of the investing company – according to IMF requirements[14] – based on the direct investor, not the ultimate one: therefore in our example, GE's investment is shown as coming from the Netherlands and Austria (from the GE subsidiaries based there). This explains why the share of US capital in Hungarian FDI stock is so tiny while the majority of large US multinational companies as well as many medium-sized ones are present with production or service facilities in Hungary.

It is likely that today, it is not only US-based companies that utilise these techniques. Let us look at the situation with the largest Hungarian companies by sales. (See *Table 9.)*

Table 9

Top 20 non-financial companies by revenue in Hungary in 2012

	Company name	Ownership structure	Sector	Revenue (forint millions)
1.	Mol Magyar Olaj- és Gázipari Nyrt.	Diverse, greatest share: MNV Zrt (Hungarian – 24.74%), C.EZ (Czech– 7.35%)	Energy	5,522,316
2.	Audi Hungária Motor Kft.	HUNGARIAN (100%), *ultimate: German* (100%)	Automotive	1,612,480
3.	GE Infrastructure CEE Holding	Direct investors: Austrian and Dutch *ultimate: USA*	Energy, machinery and business consulting	1,447,328
4.	Magyar Villamos Művek Zrt.	Hungarian (100%)	Energy supply	767,754
5.	Samsung Electronics Magyar Zrt.	South Korean (100%)	Electronics	713,517
6.	E.On Földgáz Trade Zrt.	German (100%)	Energy trading	699,415
7.	FibriaTrading International	Direct: Brazilian (48.3 %), Hungarian (51.7 %); *ultimate: Brazilian*	Paper wholesale	611,394
8.	Tesco-Global Áruházak Zrt.	Direct: Luxembourg (99.75%), British (0.25%); *ultimate: British*	Retail	607,931
9.	Magyar Telekom Távközlési Nyrt.	Diverse (stock exchange), greatest share: T-Mobile	Telecoms	607,128

[13] See for example for US investments on the role of the Netherlands: *Kahale* [2011], on the role of Luxembourg, a report by the US embassy there: http://luxembourg.usembassy.gov/doing-business-local.html, and in general about direct and indirect FDI: *Kalotay* [2012].

[14] OECD [2008] recommends to publish various supplementary data for FDI, among others composition by ultimate investor countries.

		Global Holding Nr. 2 GmbH (59.21%), German		
10.	E.On Hungária Energetikai Zrt.	German (100%)	Energy supply	570,852
11.	Flextronics International Kft.	Austrian (99.96%), Hungarian (0.04%) *ultimate: USA/Singapore*	Electronics	511,215
12.	Panrusgáz Gázkereskedelmi Zrt.	German (50%), Russian (40%), Hungarian (10%)	Energy trading	424,219
13.	Magyar Suzuki Zrt.	Japanese (100%)	Automotive	409,150
14.	Nokia Komárom Kft.	Finnish (100%)	Electronics	394,376
15.	PCE ParagonSolutions Kft.	Cayman Islands (100%) *ultimate: Taiwanese*	Electronics	379,430
16.	Tiszai Vegyi Kombinát Nyrt.	Hungarian (Mol majority holding: 94.86%)	Chemicals	374,584
17.	Sanofi–Aventis/Chinoin	Direct: Hungarian (100%), *ultimate: French*	Pharmaceuticals	364,329
18.	Spar Magyarország Kereskedelmi Kft.	Direct: Swiss (100%), *ultimate: Dutch*	Retail	356,614
19.	Borsodchem Zrt.	Hungarian (100%), intermediate: Luxembourg (96%), Cyprus (4%), *ultimate: Chinese*	Chemicals	350,575
20.	JabilCircuit Magyarország Kft.	Direct: Dutch (49%), Luxembourg (49%), Scottish (2%); *ultimate: USA*	Electronics	342,333

NB: Several companies had ownership changes during 2013–14; the table reflects the status in 2012.

Source: HVG TOP 500 and authors' compilation based on balance sheet reports (ownership structure).

Analysis of the largest companies by sales confirms that it is equally important to carry out more detailed, company level examinations when dealing with data on the breakdown of FDI by ultimate home countries.

Summary and conclusions

The ramping-up of foreign direct investments and the ever more intensive activity of multinational companies not only attracts scientific attention but also strengthens the need for economic policy-making to have a clear picture of the role they play in the economy. Out of the available indicators, the data published in the balance of payments is clearly the best: it is available most widely and most easily and thanks to the efforts of international organizations, enables comparisons as well as striving to meet the challenges posed by the changing global economic environment. The analysts of the Hungarian National Bank carry out important and thorough work in this area, the result of which is reliable Hungarian FDI data. At the same time, multinational companies under the pressure of the crisis are relying ever more heavily on the organizational and tax optimization techniques that they have strived to employ; starting with the 1980s in order to improve operational efficiency and/or reduce their tax

burden. As a result of this, not only do today's full flow and stock FDI data contain an ever greater proportion of elements that cannot be considered FDI in an economic sense, but in addition, the FDI breakdown data by sector and activity yields decreasing amounts of useable information. For example, today we cannot know with certainty the ultimate country of origin of an investor, the real locations of production and it is difficult to assess a country's real ability to attract FDI. It is not possible to mechanically compare FDI invested in various countries without knowing the precise content and it could likewise lead to false conclusions if one solely considers the breakdown by country or sector in the balance of payments report when evaluating the regional and sector and industry composition of inward and outward FDI for a particular country.

The subject area certainly demands continued analysis and study – this article is intended to raise initial awareness.

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