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Double-entry bookkeeping and the balance of payments: the need for a substantial, conceptual reform¹

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Abstract

On the basis of the identity between each country's global imports and exports, which is one of the fundamental economic principles of the balance of payments, the paper highlights why the leading account of transactions from/to the rest of the world needs to be reformed. As a strategic goal, the balance of payments should finally move beyond its current purely statistical and simple-entry bookkeeping approach in order to improve its macroeconomic relevance. The creation of an economic account of the nation as a whole and the introduction of a consistent way of recording transactions following a truly double-entry bookkeeping would also erase statistical discrepancies *ex ante* and reflect the necessary equality (identity) of credits and debits both for all transactions taken together and for each of them separately.

Keywords: balance of payments; double-entry bookkeeping; nation's economic account; reserve assets.

JEL classification: B27; F32; F33; P33.

1. Introduction

We can preliminarily state that the balance of payments (BoP), namely "a statistical statement that systematically summarizes, for a specific time period, the economic transactions of an economy with the rest of the world" (IMF 1997, p. 6), is the most relevant external statistical document registering all international (traceable) commercial and financial transactions between countries. It is common knowledge that this statistical tool can be separated into a "current account" (CA) and a "capital and financial account" (CFA). "Reserve assets", which are a subcategory of the capital and financial account, mainly keep track of variations in official reserves made up of foreign currencies, precious metals and SDRs. Moreover, "every recorded transaction is represented by two entries with equal values. One entry of these pairs is designated

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a credit with a positive arithmetic sign, the other is designated a debit with a negative sign" (IMF 1997, p. 6). So far, nothing new or original. And this is the risk with today's view of the BoP, that it may be interpreted (wrongly) as a mere tautological statement. To avoid this risk let us analyse critically the double-entry bookkeeping logic behind the BoP.

We begin by analyzing the current notion of BoP: its *equilibrium* results from "real" flows (CA) matching "financial" flows (CFA). Under these conditions "[t]he balance of payments must accordingly be looked at as a whole rather than in terms of its individual parts" (Stern 1973, p. 2). However, a similar approach appears to be somewhat reductive since a situation of equilibrium between two distinct transactions reflects a simple-entry rather than double-entry bookkeeping logic. It would be simplistic – therefore, wrong – to claim that our purchase is our foreign correspondent's sale (which is a truism), when the logic of double-entry bookkeeping requires both his and our purchases to be matched by simultaneous and equivalent sales. Hence, a second approach (point 2.) should be explored, namely one reflecting a *truly* double-entry bookkeeping approach. The paper will:

- show that every net buyer (seller) on the commercial market (goods/services) *must be* a net seller (buyer) on the financial market (securities);
- re-imagine the role of the "reserve assets" item and, more generally, of international reserves in the BoP itself.

The article will explain why today's system of international payments fails to recognize the existence of countries as sets of their residents. The methodological approach adopted will be mainly logical-analytical, supported by insights from statistical evidence.

2. The identity between each country's global imports (IM) and its global exports (EX).

The starting point of the discussion is that "countries' international transactions have to comply with the BoP identity $IM \equiv EX$, where IM stands for the totality of a country's imports, financial and commercial, and EX represents the totality of its exports, both commercial and financial" (Cencini 2017, p. 150). Even where a CA surplus (deficit) represents a positive (negative) disequilibrium of the transactions recorded therein over those registered in the CFA, the BoP itself is balanced. This means that all the operations in all the accounts taken together are necessarily equal to zero. "As with any other account, the total receipts of a country are bound be equal to the total payments of that country, if one includes all the receipts and all the payments of the country in the account" (Meade 1970, pp. 3-4).

Bearing in mind that "gold" is no longer used to settle international transactions and that the "purchasing power" used to cover a commercial imports surplus derives from corresponding excess financial exports (CA deficits are financed by an equivalent sale

of financial claims as registered in the CFA), total receipts (+) are necessarily equal to total payments (-). Or, as formulated by Krugman and Obstfeld (1997, p. 314), “this principle of payments accounting holds true because every transaction has two sides: if you buy something from a foreigner you must pay him in some way, and the foreigner must then somehow spend or store your payment”. In other words, “[l]ooked at more closely [...] Krugman and Obstfeld’s quote discloses the presence of a fundamental law guaranteeing the necessary duality between each resident’s sales and purchases. In fact, if the foreigner from whom a resident buys must spend his payments – if he stores it, he spends it for the purchase of claims on bank deposits –, this means that the purchase of a resident is necessarily matched by an equivalent sale and that, reciprocally, the sale of the foreign correspondent is balanced by a purchase of the same amount” (Citraro 2004, p. 44). Both individuals are commercial and/or financial buyers and purchasers at the same time and within every transaction. Because of the flow nature of money, the law of the necessary equality of sales and purchases applies also when transactions concern countries considered as *sets of their residents*.

Money conveys reciprocal payments the terms of which are real goods and financial assets.

Although bank money continues to be misinterpreted as an asset or a commodity, it is a fact (“[money is] a circular flow [...]. [T]he instantaneous reflux of money to its point of origin cannot be identified with an equilibrium condition that might be satisfied (or not). It is, in fact, a fundamental law of bank money that will always be logically true, regardless of the behavior of economic agents” (Pilkington 2007, p. 150)). But let us suppose that money is an asset: if so, (inter)national exchanges would split up into two non-simultaneous transactions. Goods/services/financial claims of resident A in country A against a sum of money of resident B in country B would mean a sale for the former and a purchase for the latter. “Money being also considered as a simple veil, the seller will later become a purchaser, yet sale and purchase will be equivalent only at equilibrium (which is but one possible outcome of economic agents’ behaviour), and they will remain two chronologically distinct events” (Cencini 2005, p. 247). In reality, issued by banks as a spontaneous acknowledgement of debt of zero intrinsic value, money is a vehicular means by which payments are carried out and not the object of these payments. By its own nature, money is a flow and not a stock. So, payments that are *conveyed* by money must have a real stock of produced goods and services as their *real content*. As monetary payments obey the principle of double-entry bookkeeping; each agent entering an exchange is simultaneously credited and debited by the same amount of money, whose circular flow is instantaneous. Money is present in each payment and flows immediately back to its point of injection as soon as the payment is completed. Finally, the terms of any exchange are real goods, present and future, conveyed through the flow of money. Being at the same time credited (debited) and debited (credited) for the same amount of money, economic agents are, simultaneously, sellers (buyers) and buyers (sellers) of real goods (either in the form of produced goods and services or in that of financial claims).

The formulations above describe the so-called “law of the identity between each agent’s sales and purchases” formulated by Bernard Schmitt (1975). Based on the circular essence of bank money, every net buyer (seller) on the commercial market (goods/services) must be a net seller (buyer) on the financial market (securities). Put another way, an economic subject has to finance his purchases by a concurrent sale and – each time he sells – he must concurrently purchase. If this holds true for the individual agent, it is possible to treat the country itself (the set of its residents) as “a single macroeconomic agent acting on the commodity and financial markets. Hence, as any single resident can finance his purchases only through equivalent sales, a country can finance its commercial and financial imports only through equivalent sales of goods, services, and financial assets” (Cencini 2005, S. 248). This is confirmed by the IMF *Balance of payments manual* stating that “[m]ost entries in the balance of payments refer to transactions in which economic values are provided or received in exchange for other economic values. These values consist of real resources (goods, services, and income) and financial items. Therefore, the offsetting credit and debit entries called for by the recording system are often the result of equal amounts having been entered for the two items exchanged” (IMF 1993, p. 7). The terms “goods, services, and income” refer to the CA, while “financial items” refer to the CFA.

Let us take the example of the payment of a reserve currency country’s net imports (e.g. the case of the US). The American nation would pay for its net purchases of goods and services by transferring a certain amount of its domestic currency (\$100) to its foreign creditors in the rest of the world (RW). Apparently, U.S. net commercial purchases are not matched by any sale. However, this conclusion cannot be right since it openly contravenes the fundamental reciprocity implied by double-entry bookkeeping. Since money is a circular flow, there cannot be any net transfer of US Dollars to the RW. This means that the payment by the American banking system does not prevent the immediate reflux of US Dollars to their point of departure. But, once again, is this not another way of saying that US net commercial purchases remain unmatched by equivalent sales? It is not. In fact, if on the one hand money units (\$100) are immediately recovered by the American banking system, on the other hand the rest of the world obtains, through the circular flow of US Dollars, a financial asset (a claim on US bank deposits) while the American nation obtains an equivalent amount of domestic output of RW. This example may be expressed in numerical terms (**Table 1**). On the one hand, US importers pay for their outstanding commercial transactions (\$100). On the other hand, exporters from RW receive the countervalue in domestic money (x units of MRW) on their bank accounts. This is the way any transaction is settled from an individual perspective. Thus, the debtor pays and gets rid of his liability by means of his domestic currency (\$100) – regardless of whether the country is a reserve currency or a non-reserve currency one – while the creditor is paid domestic currency (x units of MRW). The U.S. central Bank takes over the payment of its local importers and transfers it to the banking system of RW. The central Bank’s monetary intermediation makes it possible for US importers to pay in their local currency (\$100) while the payee gets the countervalue in his local currency. What happens in between is the “monetization of an external gain” by the banking system (represented by its central bank) of RW, which stores the US-Dollar amount in its foreign currency reserves while it creates the countervalue in local money units to the benefit of RW’s exporters.

US banking system (net commercial deficit)			
<i>Liabilities</i>		<i>Assets</i>	
Banking system of RW	\$100	US importers	\$100

Banking system of RW (net commercial surplus)			
<i>Liabilities</i>		<i>Assets</i>	
Exporters of RW	x units of MRW	US banking system	\$100

Table 1: Payment of a reserve-currency country's net imports.

Source: representation based on Cencini (2005, p. 248)

Therefore, US importers pay \$100 while exporters from RW receive x units of MRW. The transaction is settled from a microeconomic perspective. Let us now look at what happens on a macroeconomic level, namely between countries as sets of residents. Even though the US can pay for its net imports in US dollars, their payment obeys the same rule applying to any other country. The flow nature of money and the compliance with double-entry bookkeeping are such that the dollars paid to RW flow immediately back to the US banking system. Net purchaser of commercial goods from RW, the USA is therefore, at the same time and for the same value, a net seller of financial claims on US bank deposits. Hence, each country's purchases, commercial and financial, are funded by equivalent and simultaneous sales.

If mainstream economics remarks that "[a]lthough the balance of payments accounts are, in principle, balanced, imbalances result in practice from imperfections in source data and compilation" (IMF 2009, p. 11) and the aggregate sum of debts and credits has to be specifically offset by an item called "net errors and omissions", it is because it is *de facto* neglecting that the BoP is not based on an equilibrium, but on an "identity" (IMF 2009, p. 224). In other words, $CAB + CFAB \equiv 0$ where CAB corresponds to the CA and CFAB to the CFA balance ("Alternatively, it could be said that the current account balance is equal to the sum of balances on the capital and financial accounts (with signs reversed, if necessary, depending on the presentation used) including reserve assets" (IMF 2009, p. 224). Yet, accepting that today's balance-of-payments entries are derived independently from different sources (with consequent risk of time lags) confirms the implicitly underlying single-entry bookkeeping conception and reduces the BoP itself to a mere collection of statistical data instead of being a clear-cut T-account of all external transactions.

3. The involvement of CA and CFA in countries' external transactions.

Carried out by countries' residents, cross-border payments concern the systems of national and of international payments. Both are founded on the use of bank money, hence on the necessary equality, the identity, of credit and debit. Economists all over the world accept this identity. Within nations, national banking systems

function consistently with this principle, while at the international level BoPs are, at least in theory, assumed to adopt it as a reference. Can double-entry be considered as a point of equilibrium that can be approximated but hardly or very seldom reached? In no way can logical identity be avoided; but neither can it ever become a condition of equilibrium. If, nonetheless, it is not complied with, a disorder ensues.

International payments comply with the logical identity between any economic agent's sales and purchases.

Cross-border transactions take place between the residents of any given country and those of the rest of the world. This is true even in the case of public transactions, for the simple reason that public institutions are residents of their own country. Whether public or private, international payments are carried out by banks in compliance with the double-entry bookkeeping rule establishing the necessary correspondence of credits and debits. If a resident *a* of country A purchases commercial goods or financial assets of a value equal to *x* units of money A, MA, from a resident *b* of country B, it is tautological to say that *a*'s purchases are *b*'s sales. It is also a truism to claim that the payment of *a*'s purchases defines the debit of *a*'s bank account and the equivalent credit of *b*'s bank account. If nothing more could be said about this payment, we would have to conclude that double-entry is the matching of two separate entries in two distinct accounts, each entry being in all respects *simple*. Reality is far richer: double-entry entails both the debit *and* the credit of *each* agent involved in any transaction, national or international. Agent *a* can pay for its international purchases only if it holds the income required to finance them. Either *a* is the holder of a previously earned income deposited in its bank account, or it obtains it through a sale of claims on the financial market (we leave aside gifts and inheritance, because irrelevant here). In both cases the identity credit-debit applies to each single economic agent and to each single transaction. A transposition of the principle of double-entry bookkeeping, this identity can also be expressed, as Schmitt did (1975), as the law of the necessary equality between each single agent's sales and purchases. This means that every transaction on any market is necessarily balanced by an immediate reverse transaction on another market. When agent *a* is a purchaser on the trade market of *b*'s goods, Schmitt's law states that *a* is also, at the same time, a seller on the financial market. Bank deposits are financial claims, so that when *a* gives back to its bank the rights on its bank deposits it is indeed selling an amount of financial assets. Finally, *a*'s net commercial purchases of *b*'s real goods are financed by equivalent and simultaneous sales of financial claims. Agent *b* balances its commercial sales to *a* with an equivalent purchase of financial assets, claims on the bank where the proceeds of its sales are deposited.

It is thus confirmed that payments between residents, whether of the same country or of different countries, comply with the identity of their debits and credits, each purchase being financed by an equivalent and simultaneous sale. In other words, this means that money intervenes to convey reciprocal exchanges the objects of which are commercial and financial assets. Perfectly in line with Adam Smith's definition of money as the 'great wheel of circulation' (Smith [1776] 1978, p. 385), this notion of money as a 'vehicle' is the only one compatible with double-entry bookkeeping. In our example, MA and MB convey the payments between *a* and *b*;

yet, neither MA, nor MB are an object of exchange. What agent a gives in exchange for a sum of goods sold by b is not a sum of MA, nor is it a sum of MB in which MA is transformed. Both MA and MB are vehicular means of payment; through their circular flow a and b exchange commercial goods against financial assets. Does the circular flow of money occur also when countries take over the foreign payments of their residents? This question calls for an analysis of the involvement of countries in the cross-border payments of their residents, State included.

The payment of a country's external transactions and its implications for the BoP.

The need to transfer abroad the cross-border payments made in national currency by their residents, leads to the involvement of their countries. If residents of country A are net importers of commercial goods from RW, it is country A that is a net commercial importer, even though A's imports may not be traced back to any specific importer or exporter. The role of countries, or of their central banks, is to convert the payment in national money of their residents into a payment in foreign currency. In other words, they must convey through the 'international space' the external payments initially carried out in domestic currency. As officially recognized by international institutions such as the IMF and the World Bank, international transactions carried out by countries must comply with the BoP identity between entries in CA and entries in the CFA, the CA being the mirror image of the CFA. The necessary equilibrium between the transactions entered in the CA and those entered in the CFA means that a country's net commercial imports (resp., exports) must be balanced by equivalent net financial exports (resp., imports). Hence, A's net trade surplus is immediately matched by an equivalent deficit of its CFA. This is so because the payment of A's net imports gives rise to an inflow of foreign currencies into RW, which are immediately invested in A. It is thanks to this investment, corresponding to the purchase by RW of an equal amount of A's financial assets, that A can finance its net commercial purchases from RW.

Expressed as the identity between each country's global imports, IM, commercial and financial, and its global exports, EX, commercial and financial, the BoP identity is a logical principle accepted worldwide. If it were duly complied with, it would guarantee the vehicular use of any currency used to carry out international payments. The $IM \equiv EX$ identity establishes the fact that the terms of any international exchange are always and necessarily real goods, either in the form of commercial goods or of financial assets. If the trade balance is in equilibrium, both terms of the exchange are actual goods. If it is not, the difference is an exchange between present goods and future goods, the latter being the object of the financial claims the export of which matches the net import of commercial goods. Being carried out in bank money, international payments taken over by countries are made through debits-credits and credits-debits, which implies that money is never the object of any payment. As in the case of payments analysed from the viewpoint of (non-)residents, each country entering international exchange is debited-credited or credited-debited anytime it carries out, or is the beneficiary of, a foreign payment. Let us consider the case where country A is paid by RW, in MRW, for its sales of part of its domestic output. As soon as A is credited by R of a sum of MRW it is debited by the same amount: issued by

the banks of RW, MRW flows immediately back to its point of departure (double-entry bookkeeping requires it), and in exchange for its commercial exports, A is credited with an equivalent claim on RW's banks, that is, with a claim on a bank deposit in RW. It is thus confirmed that, between countries, 'each commercial payment is a financial payment of inverse algebraic sign, [and] each financial payment is a zero-sum transaction unless it is founded on a commercial payment of opposite sign' (Schmitt 2008, p. 3 [our translation]). As a consequence of the identity $IM \equiv EX$, money is an intermediary, a circular means of payment that never replaces the real terms, commercial and financial, of any international transaction.

Actually, the preceding conclusion describes the logical nature of international payments and not the way the present system works. IMF and World Bank experts say that '[i]n principle, the current and capital accounts should be mirror images' (IMF 1987, p. 12). What is emphasized here is the existence of a discrepancy between theory and practice, between the way the system of international payments *should* work and the way it *actually* works. In its present form, the BoP is a collection of statistical data and not a true bookkeeping representation of countries' foreign transactions and payments. We are thus confronted with a number of inconsistencies, such as those denounced by the IMF Working Party in 1987 and concerning the non-zero amount of the world's CA indicating a disorder the consequences of which, countries' over-indebtedness, are disastrous for countries and their residents.

By erroneously identifying double-entry with *simple* double-entry (a mere tautology) rather than with *double* double-entry, each entry being simultaneously a debit-credit or a credit-debit, economists have failed to fully recognize the flow nature of money. The BoP in its present form is a direct implication of this truncated conception of double-entry, an analytical instrument not entirely fit for purpose and that must be re-elaborated according to the true principle of debits-credits and to Schmitt's law of sales-purchases.

4. The reserve account is the account of a country taken as a whole.

We have already mentioned that the economic (monetary) definition of "country" or "nation" relies on the money unit involved (US Dollar, Euro, Swiss franc, etc.) and the corresponding banking system the American, European, Swiss, etc.). By way of example, "the United States of America are a single country from an economic viewpoint, since a common money unit has legal validity within this geographical region. [...] In each country, banks are organized according to a pyramidal scheme while the central bank tops this banking structure" (Schmitt 1990, pp. 34-36 [our translation]). Hence, the monetary unit of physical production, which is used in the payment of wages, has a crucial role in defining each country's monetary space.

Net foreign currency flows modify the IIP of countries defined as "sets of their residents".

Foreign currencies play a major role in external trade. Not surprisingly, the BoP also records a statistical item called "reserve assets", which "are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, for intervention in exchange markets to affect the currency exchange rate, and for other related purposes (such as maintaining confidence in the currency and the economy, and serving as a basis for foreign borrowing)" (IMF 2009, p. 111). At the same time, "foreign currency liquidity" represents a broader concept than "reserve assets" or "international reserves", because it "concerns foreign currency resources and drains on such resources of the monetary authorities and the central government [...], relates to the authorities' foreign currency claims on and obligations to residents and nonresidents and [...] encompasses inflows and outflows of foreign currency that result from both on- and off-balance-sheet activities of the authorities" (IMF 2013, p. 4). Regardless of whether "reserve assets" or "foreign currency liquidity" are involved, it remains true that the flows of net foreign currencies modify the International Investment Position (IIP) of countries defined as "sets of their residents".

Let us separate this assertion into two distinct parts, of which the first is the more intuitive. Since "the difference between the assets and liabilities is the net position in the IIP and represents either a net claim or a net liability to the rest of the world" (IMF 2019, Internet), it goes without saying that net foreign currency outflows (resp., inflows) reduce (resp., increase) the net claims of a country as whole. The second part of the previous statement is equally true, but needs a more explanation. In fact, we have to demonstrate why countries have to be conceived as "whole sets of their residents" instead of the more intuitive formulation of "aggregate or sum of their residents". More precisely, countries or nations are monetarily speaking the "set of their private/public economic subjects (including the State)". Why "State" is not synonymous with "nation" or "country" is plain to see, since the public sector is nothing more than a part, a component, of the economy as a whole (which includes also private, financial and non-financial subjects). But, why would it be wrong to claim that countries do not correspond to the aggregate of all (private and public) economic subjects? While the concept of "sum" implies that all economic actors (S_1, \dots, S_n) of the nation are to be taken together:

$$\text{country} = \sum(S_1, \dots, S_n),$$

a "set" is not limited to their aggregation. If we represent the macroeconomic concept of "country" by means of an ellipse or a circle containing several elements (national private-public residents), the "set" would correspond to the ellipse/circle as a whole (all its components, including its perimeter):

$$\text{country} = \{S_1, \dots, S_n\}.$$

As reminded by Cencini (1997, p. 341), “[i]n the same way as the set is richer than its constitutive elements, the nation is a whole which acquires an existence which is partially autonomous from that of its residents. [...] However, if it is correct to claim that a set cannot be reduced to the sum of its elements, this does not mean that the situation of the set has to be cumulated with that of its elements”. For instance, a major logical-analytical proof that the country as a whole is – economically speaking – distinct from the sum of its elements is provided by the essence of international reserves themselves, which are, indeed, owned by countries.

International reserves are owned by countries. A new conception of the official reserves account is needed too.

Obviously, trade with the rest of the world is the first source of accumulation of foreign exchange reserves. For example, suppose that country A records a commercial export surplus (+100 MA) with country B, a net commercial importer (-100 MB) and that the exchange rate is of 1 MA to 1 MB. What happens as soon as the residents of country B settle their excess purchases of goods and services from A? The payment of B’s importers is made possible by the existence of bank deposits owned by the commercial importers in country B. Then, the payment is taken over by the central bank and the corresponding banking system. If MB is a key currency, the latter send this amount (100 MB) to the central bank of country A, which in turn is responsible for crediting the banking deposits of the commercial exporters in country A. The central bank of nation A – after recording the 100 MB received from B in its international reserves, which confirms that net commercial exports contribute to the accumulation of foreign exchange reserves – issues 100 MA to the benefit of its commercial banks. There is no doubt that bank customers always make and receive payments in the currency denomination of their bank deposit. This occurs because of the banking intermediation of the central bank at the top of each national monetary space. In other words, the central bank of country A monetizes the external profit deriving from A’s trade surplus (100 MB) by issuing the countervalue in local currency (100 MA) accruing to commercial exporters.

Hence, international reserves are managed by the central bank on behalf of the country as a whole. Commercial exporters in country A having been credited with the due amount of 100 MA no longer have any outstanding claims. The fact that “underlying the BPM5 concept of reserves are the notions of “effective control” by the monetary authorities of the assets and the “usability” of the assets by the monetary authorities” (Kester 2001, p. 14) does not contradict the conclusion that international reserves do not (monetarily speaking) pertain to any specific resident. Neither do they belong to the State, which might have contributed to their accumulation by transacting with the rest of the world and which administers them through the central bank. The BoP should, therefore, distinguish between the “origin” (residents of the country), “administration” (the central bank) and “economic ownership” (the country as a whole, namely as “set of its residents”) of foreign exchange reserves. A similar distinction is necessary, because countries are not just identifiable with the aggregate of all physical/legal persons, defined as their residents.

Ad absurdum, if a country were solely represented by the sum of its residents, having settled the above-mentioned commercial transaction the nation as a whole would not record any net commercial surplus (deficit) in the BoP. In reality, the external profit of country A from excess trade with RW represents a claim against country B and, therefore, a (spontaneous recognition of) debt of the corresponding banking system. The fact that country B still enters a net commercial deficit (-100 MB) even though commercial exporters in nation A have been finally paid constitutes the stringent proof that "a nation can be creditor[/debtor] independently of the creditor[/debtor] position of its residents. [...] once they have been paid by their banks, A's exporters no longer own any credit on their foreign correspondents and yet country A is a net creditor" (Cencini 2005, p. 249). Even legally there is no doubt that international reserves do not belong to a central bank or any other specific resident, as art. 3 of the Bundesbank Act reminds us ("[the Deutsche Bundesbank] hold[s] and manage[s] the foreign reserves of the Federal Republic of Germany" (Deutsche Bundesbank 2013, Internet). Even when international reserves are owned by the central, the central bank is acting on behalf of the undifferentiated set of the country's residents. This does not alter the claims according to which net foreign currencies' flows modify the IIP and this affects the country (not any specific private or public individual).

The existence of countries as sets of their residents should lead to a new conception of the official reserves account. Re-imagining the role of "reserve assets" would be a necessary step. Today, reserve assets appear to be involved merely in a limited number of transactions, mostly carried out by monetary authorities. Besides, – at least, in key-currency countries, whose means of payments are internationally accepted – they appear to have compensatory features rather than being a systematic account recording all transactions modifying the external position of the economy altogether. Since commercial and financial transactions recorded in the BoP pertain to private and public agents (residents) but contribute to modifying the nation's position as a whole, a country's economic account should also be created. This account would represent a new version of the already existing IIP and, by means of a double-entry bookkeeping approach, would highlight the involvement of the economy as a whole. The official reserves account would mainly deal with foreign reserves (as it already does) and it would represent the account of the country taken as a whole. Closely related to the inflows and outflows of foreign currencies, the reserve account would be directly involved in every current, CFA transaction. Hence, for example, a commercial export would entail an increase in the country's official reserves caused by the inflow of a sum of foreign currency. Substantially, the reserve account would mirror the evolution of an important part of the country's IIP and represent the country's external financial position as defined by its net stock of financial assets and liabilities. Such reform step would imply a new way of recording cross-border payments, paving the way for a new international payments system. The BoP is, even today, a powerful tool, but in order to display its "true" macroeconomic significance adjustments must be made by reformulating the official reserves account in a money-consistent way. As explained in Part 5, a profound reform is needed so that the BoP can be finally transformed into a bookkeeping instrument belonging both to the country as a whole (macroeconomic dimension) and its residents (microeconomic dimension). This would also prevent the persistence of imbalances in the CA (**Figure 1**).

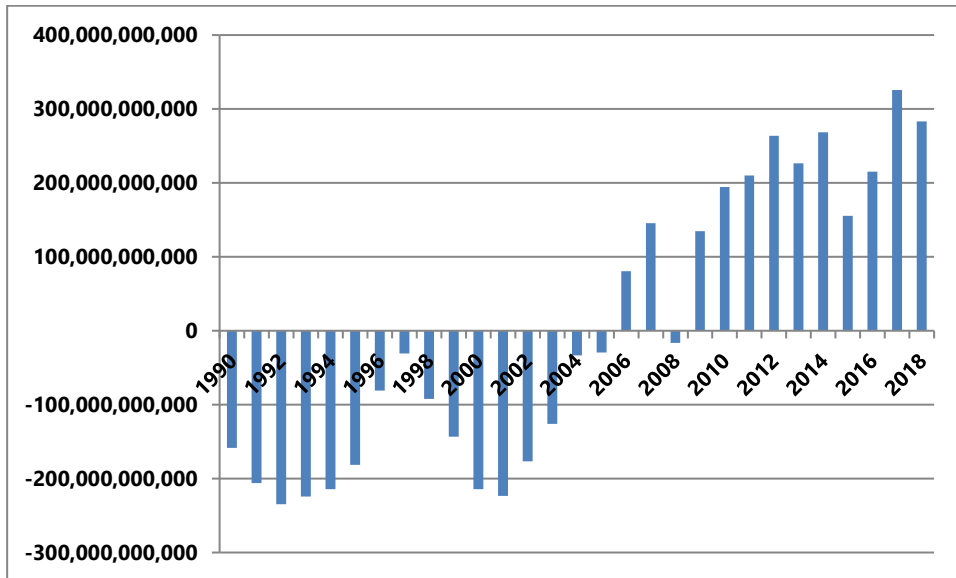


Figure 1: CA imbalances (current US\$) for 191 countries (1990-2018)

Source: calculations based on The World Bank (2019a)

Undoubtedly, the commercial exports of any country are necessarily, and tautologically, the commercial imports of other countries. Yet, global CAs show the presence of persistent discrepancies between deficits and surpluses (“What can explain these discrepancies? Was the Earth a net importer of goods and services from other planets before 2005 and a net exporter afterwards? [...] The IMF’s projection for the next five years is that these discrepancies will decrease (as they have been since 2012) and that the world current account will be negative. Accounting for the magnitude of these errors is difficult and still important to understand the existence of global imbalances around the world” (Federal Reserve Bank of St. Louis 2016). What makes things worse is that the cumulated CFA should also be equal to zero for the world taken as a whole, but it is not. This is shown (though subject to statistical discrepancies) in **Figure 2**. Although these data are biased by insufficient transparency (at least, for some countries) and by the presence of the “net errors and omissions” item (see **Figure 3**), not a negligible component, the picture is pretty clear: statistical discrepancies are very evident, enduring and – more relevantly – symptomatic of the fragmentary approach to the recording of transactions, whereas they should be registered in a simultaneous and identical-in-value way.

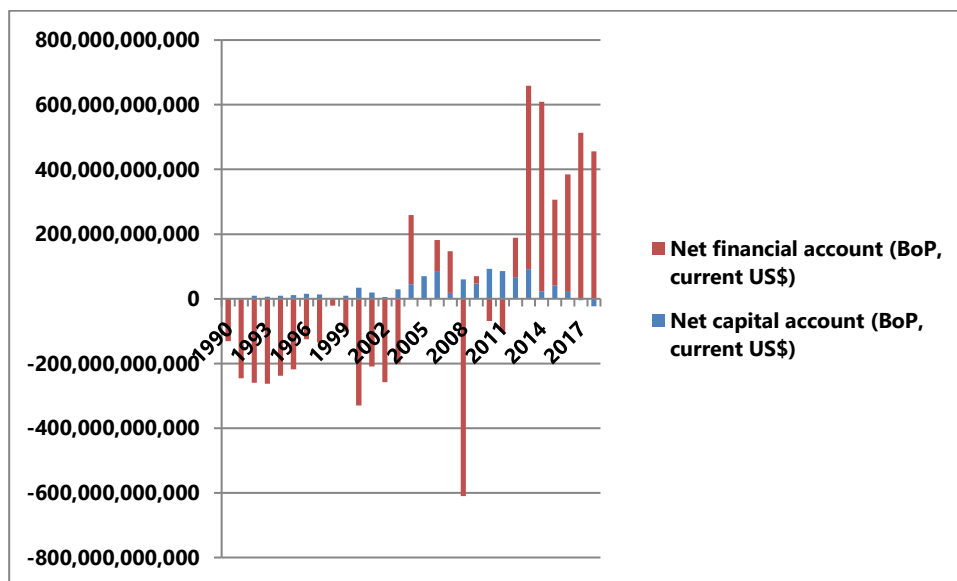


Figure 2: CFA imbalances (current US\$) for 186 and 192 countries (1990-2018)

Source: calculations based on The World Bank (2019b; 2019d)

A similar mechanism is needed for the settlement of cross-border transactions. Since the monetary concept of "nation" corresponds to the set of its private/public economic subjects (including the State itself), it is crucial that the workings of the BoP itself should duly reflect it (see Part 5).

5. Today's system of international payments does not recognize the existence of countries as sets of their residents.

In this last section we start from the factual observation that nations or countries exist as monetary entities, note that money is still wrongly identified with a positive asset, analyse the implications of this erroneous notion of money, and end by advocating the institution of a National Bureau responsible for carrying out the external payments of the country's residents according to the law of debit-credit and credit-debit.

The monetary existence of countries is incontrovertible.

The totality of any country's external transactions is carried out by its residents, State included. The country, as the set of its residents, is no autonomous economic agent. It neither imports or exports either commercial goods or financial assets. While it is true that countries are involved by implication, since the cross-border transactions of their residents require their monetary intermediation, it is also true that the end result

of these transactions concerns the country as a whole as well as its individual residents. Hence, although net exports cannot be attributed to any particular exporter or importer, they define a net gain for the country. Transferred to the country's official reserves, this gain is that of the undifferentiated set of residents, of the country as a whole. It is monetary sovereignty that determines the economic existence of countries as such. Insofar as countries maintain their national currencies, they exist as distinct economic entities. At the same time, countries act as monetary intermediaries in the foreign payments of their residents. For these two reasons, they should be endowed with a mechanism accounting for their commercial and financial situation (the BoP) and allowing for their payments to be carried out in compliance with double-entry bookkeeping.

Money is wrongly identified with an asset and international payments are faced with the forceful purchase of the monetary vehicle to convey them.

The net asset definition of money is unfortunately still widespread and a major obstacle to the understanding of its vehicular use, the only one compatible with double-entry. To claim that banks can issue money already endowed with a positive purchasing power is pure nonsense. Fortunately, double-entry comes to our rescue and guides us toward a modern conception of money. The necessary equality of debits and credits is the guiding principle, our lodestar. Money is spontaneously issued by banks, lent to the economy, and recovered in payments entered by banks in conformity with that equality.

Nationally, money is associated to production via the payment of productive services and plays the double role of unit of account and of numerical means of payment. Internationally, the intervention of money is limited to its vehicular role. Suppose, as is the case today, that the structure of the system of payments is inadequate: money will necessarily still obey the logic of those accounting identities. It is therefore already the case today that the monetary payment of a country's net commercial imports transfers to the exporting country an amount of financial claims (deposit certificates) and not a sum of money. If this fact were recognized and if cross-border payments were entered in the respective balance sheets, everything would be perfect.

A negative consequence of the lack of an orderly structure of international payments is the fact that, although money 'moves', of necessity in an instantaneous circular flow, countries have to purchase at a cost the vehicular money that is not explicitly provided by the system. Now, while it is true that when international payments are reciprocal these costs cancel each other out, there is an important case where this equalisation does not occur: the payment of interest on external debts. As clearly demonstrated by Schmitt (2012), interests are a spontaneous debt the payment of which, defined by the IMF and the World Bank as an unrequited transfer, is uncompensated. As absurd as it may seem, indebted countries pay twice their

interests on debt³. One payment is microeconomic in nature and rests on the indebted country's residents. This payment is entirely justified. The second, pathological payment rests on the country taken as a whole, the set of its residents. This payment is macroeconomic and it is due to an anomaly of the system of international payments, which does not provide countries with a mechanism guaranteeing the circular use of a vehicular money. Indebted countries have to purchase the vehicular money required to convey abroad the object (national resources) of their payment, which should be provided cost free by the system of international payments.

A reform is needed to transform the BoP into a bookkeeping instrument for both the country and its residents.

The current international payments system is flawed because it is at odds with the flow nature of money and with the double-entry principle. This is also true of the BoP. Being a mere collection of separate statistical data, the BoP hardly complies with the bookkeeping identity on which it should be founded. Billion-high net errors and omissions on the national as well as global level are a consequence (**Figure 3**). The correspondence between CA and CFA (with a reverse sign) cannot be the unstable and highly unlikely result of an equilibrium between separate transactions. It is only by entering each single transaction as a debit-credit or a credit-debit that the BoP can be considered as a bookkeeping representation of the foreign exchanges, both commercial and financial, of a country. Like its residents, a country can finance its purchases only through equivalent and simultaneous sales, its imports through its exports. This does not at all mean that each country does or should necessarily balance its commercial imports with equivalent commercial exports. A country can perfectly well run a trade deficit on condition that it bankrolls it through an equal financial surplus, that is, through a sale of financial claims. The reciprocity of exchanges subsumes both the commercial and the financial markets, any net commercial purchase being covered by a net sale of claims on part of the country's future output. It is not the trade balance of any single country that must be in equilibrium, but its monetary balance, its overall inflows and outflows of foreign currencies. The identity of IM and EX corresponds to the identity between each country's global sales and purchases. Its corollary is the necessary equilibrium of their monetary balances, the vehicular use of the currency used to convey their reciprocal payments.

³ Beretta (2012; 2017) has argued the same about some historical cases of war reparation payments, since they are unilateral and have to be provided in internationally accepted currencies.

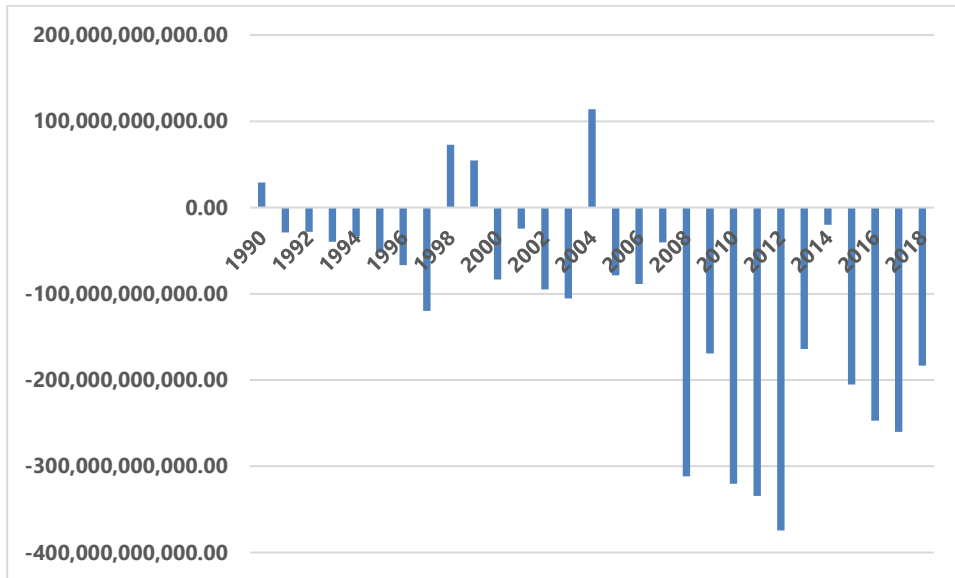


Figure 3: Net errors and omissions (current US\$) in the BoPs of 192 countries (1990-2018)

Source: calculations based on The World Bank (2019c)

In practice, the reform needed to transform the BoP into a bookkeeping account of the external transactions of countries consists in creating, in each country, a national Bureau responsible for all the payments by and in favour of the country's residents. The Bureau must be conceived as a 'dual' institution, Janus-faced as it were: one face, its internal department, turned toward the country's domestic economy, and the other face, its external department, turned toward the rest of the world. In this new scenario, each payment request made by a resident in favour of a non-resident is submitted to the country's national Bureau, which represents the country. Using the country's domestic currency, each payment initiated by the country's residents is carried out as a double double-entry procedure. Thus, for example, importers are credited-debited by their banks: their purchases, which imply a debit, are matched by sales of financial claims (deposit certificates or securities), for the amount with which they will be credited. At the same time, the Bureau's internal department is credited by the sum of national currency spent by importers and debited for an equal amount to the benefit of its external department. Responsible for payments to the rest of the world for their exports, the external department will purchase financial claims from its domestic economy and sell them abroad in order to finance its external payment on behalf of country's importers. Every inflow of national or foreign currencies to each department of the Bureau will thus be balanced by equivalent outflows. Currencies will be used as a means to convey payments, and real goods, present and future, will be the only content or object of these payments.

The analytical description above encapsulates the gist of the reform advocated by Bernard Schmitt (2014). The principles of the reform derive directly from double-entry bookkeeping and imply a radical change in the way BoPs are constructed. What must be changed is the way entries are recorded. Every transaction must be entered twice, once as a credit (debit) and once as a debit (credit). This is the essence of the radical change necessary to turn the BoP from a statistical collection of data into an

instrument delivering a clear picture of a country's commercial and financial relationships with the rest of the world.

6. Concluding remarks

A country's BoP accounts for its international commercial and financial transactions with the rest of the world. Its significance is not only due to its far-reaching history, since data on goods, services, and financial claims have been published, quite systematically, from the 19th century onwards, but also to the underlying double-entry bookkeeping mechanisms. Today, despite being still a powerful tool indicating the external position of a country towards the rest of the world, it lacks an approach structurally based on double-entry bookkeeping. Double-entry bookkeeping logic (which necessarily implies the identical balance between CA and CFA) is openly neglected, turning the BoP into a mere statistical (and, therefore, less reliable) instrument.

Despite introducing structural changes in terms of systematicity, countries could adopt and implement them relatively easily. This would also drastically simplify the recording process, now complicated by valuation and time issues (leading to massive, cumulative inaccuracies). A win-win solution, therefore, while times are ripe for a conceptually macroeconomic approach in line with double-entry bookkeeping, that is, with the fundamental principles of the BoP itself.

7. Annex

We have devised an example to illustrate what would occur once the BoP had been reformed. Let us suppose this simplified scenario:

- country A exports 100 MA, imports 200 MA in terms of goods and services and has a CA deficit of 100 MA;
- country B exports 200 MB, imports 100 MB in terms of goods and services and has a CA surplus of 100 MB;
- countries A and B are the only nations (and MA and MB the only currencies)⁴;
- countries A and B are allowed to use their currencies internationally⁵.

Each commercial and financial transaction is balanced by an equivalent one with opposite sign. CA surpluses (deficits) are matched by equivalent purchases (sales) of financial claims, which offset the BoP of the countries involved. The Internal and External Department of country A register each three transactions (1a.,4a.: commercial exports / 2a., 5a.: (excess) commercial imports / 3a., 6a.: imports of financial claims).

The same transactions, with reverse sign, are entered by the Internal and External Departments of country B, which enters an additional transaction (3b., 6b.). In fact, country B has to monetize the external gain (+100) from having commercially exported more than it has imported.

Registrations in country A (CA deficit)

National Bureau of country A - Internal Department				
<i>Liabilities</i>			<i>Assets</i>	
1a.	Exporters of goods/services	100 MA	External Department	100 MA
2a.	External Department	200 MA	Importers of goods/services	200 MA
3a.	Sellers of financial claims	100 MA	External Department	100 MA

Table 2: The registrations of the National Bureau CA-deficit country A (Internal Department)

National Bureau of country A - External Department				
<i>Liabilities</i>			<i>Assets</i>	
4a.	Internal Department	100 MB	National Bureau of country B (commercial transactions)	100 MB
5a.	National Bureau of country B (commercial transactions)	200 MB	Internal Department	200 MB
6a.	Internal Department	100 MB	National Bureau of country B (financial transactions)	100 MB

Table 3: The registrations of the National Bureau in CA-deficit country A (External Department)

Registrations in country B (CA surplus)

National Bureau of country B - Internal Department

<i>Liabilities</i>			<i>Assets</i>	
1b.	Exporters of goods/services	200 <i>MB</i>	External Department	200 <i>MB</i>
2b.	External Department	100 <i>MB</i>	Importers of goods/services	100 <i>MB</i>
3b.	External Department	100 <i>MB</i>	Purchasers of foreign financial claims	200 <i>MB</i>

Table 4: The registrations of the National Bureau in CA-surplus country B (Internal Department)

National Bureau of country B - External Department

<i>Liabilities</i>			<i>Assets</i>	
4b.	Internal Department	200 <i>MA</i>	National Bureau of country A (commercial transactions)	200 <i>MA</i>
5b.	National Bureau of country A (commercial transactions)	100 <i>MA</i>	Internal Department	100 <i>MA</i>
6b.	National Bureau of country A (financial transactions)	100 <i>MA</i>	Internal Department	100 <i>MA</i>

Table 5: The registrations of the National Bureau in CA-surplus country B (External Department)

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DOUBLE-ENTRY BOOKKEEPING AND THE BALANCE OF PAYMENTS: THE NEED FOR A SUBSTANTIAL, CONCEPTUAL REFORM.

by

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INTRODUCTION: THE PAPER'S METHODOLOGICAL APPROACH AND AIM

The paper explores:

- the double-entry bookkeeping logic behind the **BoP as conceived today** (i.e. **positive analysis**).
- the double-entry bookkeeping logic behind the **BoP as it should be conceived in future** (i.e. **normative analysis**) to formulate a statistically-relevant statement coherent with the essence of modern money and a true system of international payments.

Preliminary considerations about point 1.:

- the BoP's *equilibrium* results from “real” flows (cf. CA) matching “financial” flows (cf. CFA).
 - i. tautological since an *equilibrium* between two distinct transactions reflects a **simple-entry rather than double-entry bookkeeping** logic.
 - ii. simplistic to claim that our purchase is our foreign correspondent's sale, when **the logic of double-entry bookkeeping requires both his and our purchases to be matched by simultaneous and equivalent sales.**

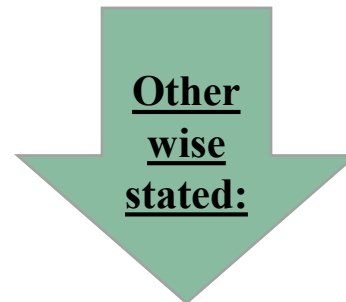
A second approach (cf. point 2.) should be explored to reflect a *truly* double-entry bookkeeping approach. The paper will hence:

- demonstrate the theorem according to which – based on the circular essence of bank money – **every net purchase (sale) on the commercial market must be instantaneously matched by a net sale (purchase) on the financial market.**
- re-imagine international reserves in the BoP itself. Since commercial/financial transactions recorded in the BoP pertain to private/public agents (i.e. residents) but they modify the nation's position *as a whole*, **a nation's economic account should be created** too.

**THE IDENTITY BETWEEN EACH
COUNTRY'S TOTAL IMPORTS (IM) AND
TOTAL EXPORTS(EX),
COMMERCIAL AND FINANCIAL.**

Some fundamental relations (see Cencini 2007, p. 150):

- countries' international transactions have to comply with **the balance of payments identity IM \equiv EX**:
 - i. IM \rightarrow totality of a country's imports, financial and commercial;
 - ii. EX \rightarrow totality of a country's exports, financial and commercial”.



“[There is] a **fundamental law guaranteeing the necessary duality between each resident's sales and purchases**. In fact, if the foreigner from whom a resident buys must spend his payments – if he stores it, he spends it for the purchase of claims on bank deposits –, [...] the purchase of a resident is necessarily matched by an equivalent sale and that, reciprocally, the sale of the foreign correspondent is balanced by a purchase of the same amount” (Citraro 2004, p. 44).

What the BoP identity $IM \equiv EX$ implies:

- if country A *buys* goods, services or financial claims from country B, it necessarily *sells* goods, services or financial claims to country B to finance its commercial or financial purchases;
- conversely, if country B *sells* goods, services or financial claims to country A, it necessarily *buys* goods, services or financial claims from country A to finance A's commercial or financial purchases.

Both countries are, inevitably, commercial and/or financial buyers and purchasers at the same time and within every transaction.

The formulations enounced before describe the so-called “law of the identity between each agent’s sales and purchases” formulated by Bernard Schmitt (1975), which:

- is one of the most relevant implications of the BoP and is based on the **circular essence of bank money**.
- states that **an economic subject has to finance his purchases by a concurrent sale and – each time he sells – he must concurrently purchase**. For example:
 - i. US importers:
 - net purchase of goods/services → -\$100;
 - net sale of a claim on the importers’ income (i. e. national bank deposits) → +\$100;
 - ii. exporters in the rest of the world (RW):
 - net purchase of a claim on the importers’ income (i. e. national bank deposits) → -\$100;
 - net sale of goods/services → +\$100.



The paradox of today's BoP: “

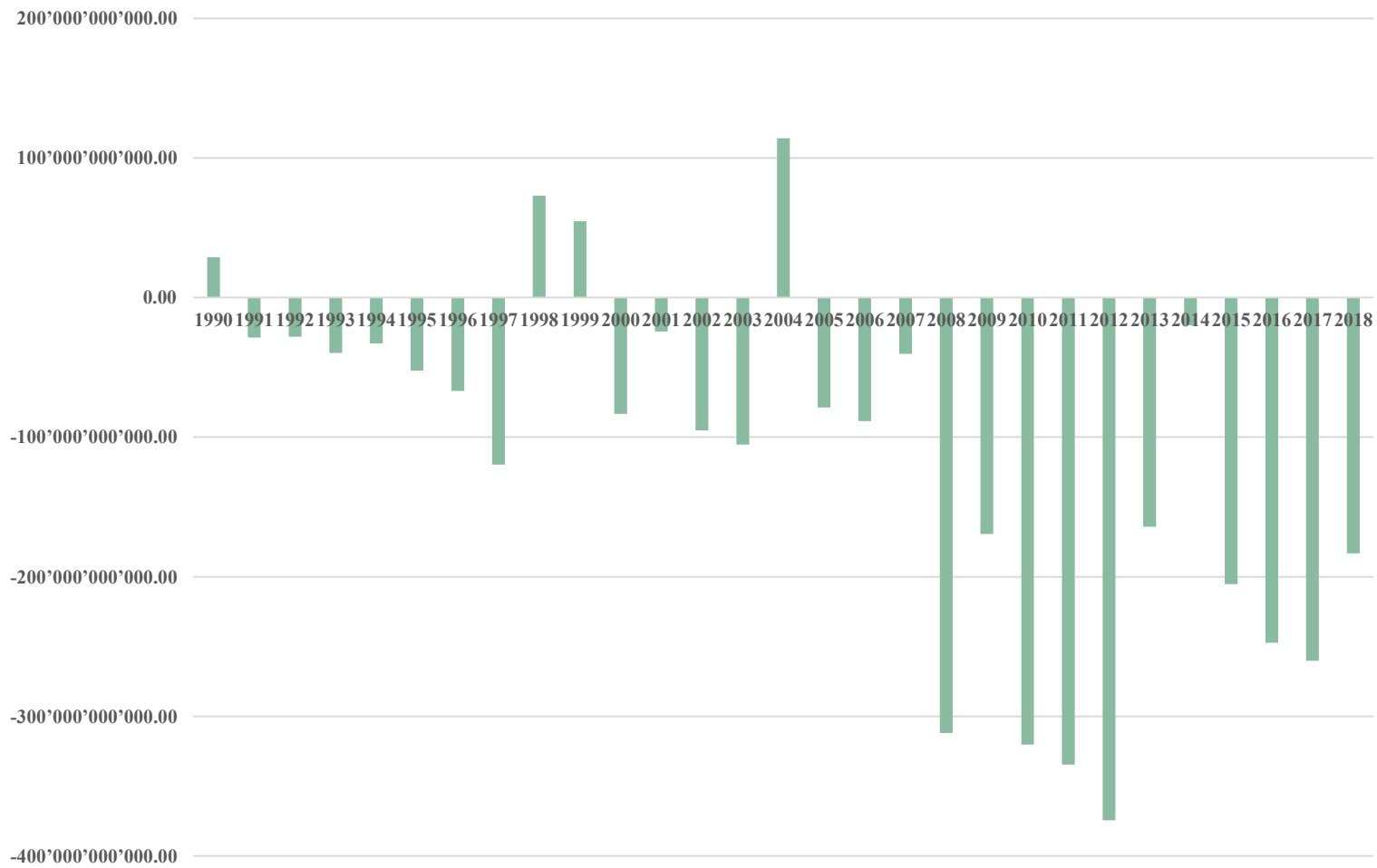
- “[a]lthough the balance of payments accounts are, in principle, balanced, imbalances result in practice from imperfections in source data and compilation” (IMF 2009, p. 11). Therefore, the aggregate sum of debts and credits has to be offset by an item called “net errors and omissions”.

How-
ever:

(1) The BoP is not based on an equilibrium, but on an “identity” (IMF 2009, p. 224): CAB + CFAB ≡ 0. (2) An equilibrium is just a *particular* (not always a *given*) condition, which has to be reached *ex post*. (3) Accepting that today's BoP entries are often derived independently from different sources (with time lags) confirms its implicitly underlying single-entry bookkeeping conception and reduces the BoP to a collection of statistical data instead of being a clear-cut T-account of all external transactions.

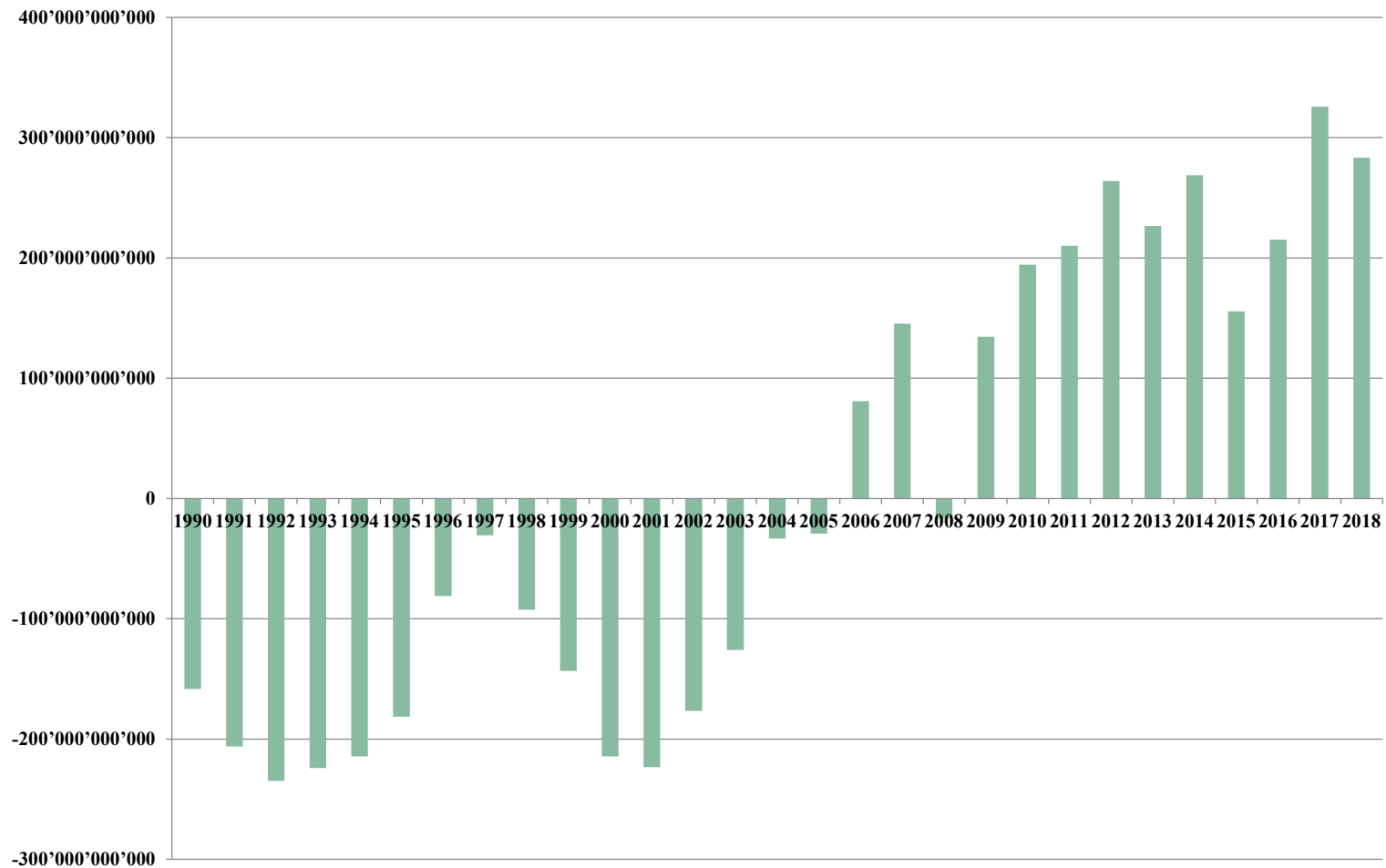
Net errors and omissions (current US\$) in the balances of payments of 192 countries (1990-2018)

Source: own calculations on the basis of The World Bank (2019c)



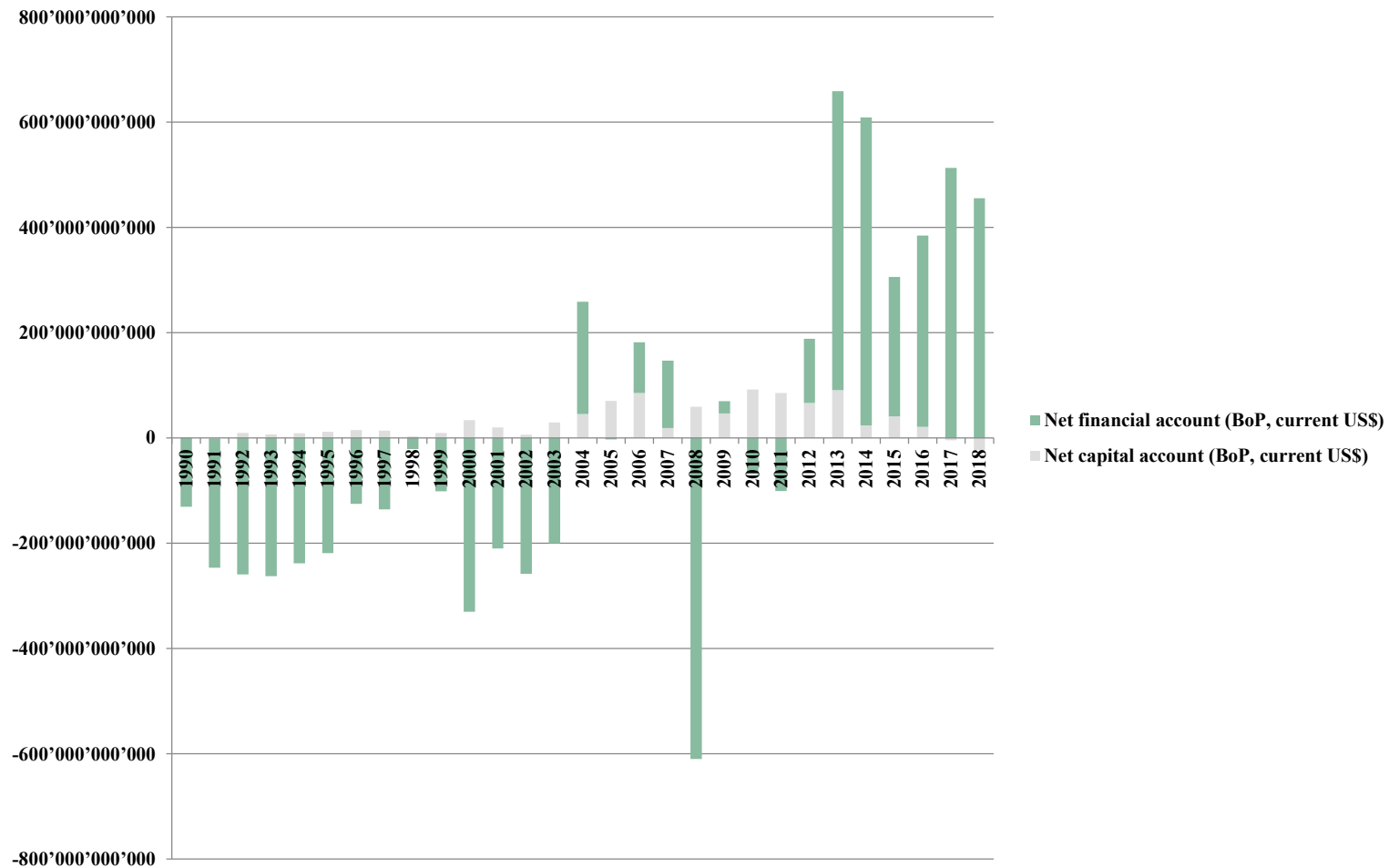
Current account imbalances (current US\$) for 191 countries (1990-2018)

Source: own calculations on the basis of The World Bank (2019a)



Capital and financial account imbalances (current US\$) for respectively 186 and 192 countries (1990-2018)

Source: own calculations on the basis of The World Bank (2019b; 2019d)



**THE RESERVE ACCOUNT (INCL.
SO-CALLED “RESERVE ASSETS”) AS
THE ACCOUNT OF A COUNTRY TAKEN
AS A WHOLE.**

Monetary definition of “country” or “nation”:

- **based on the money unit** involved **and the** corresponding **banking system** (i. e. a country’s national currency is an acknowledgment of debt of the whole system).
- **“sets of their residents”** ($\{S_1, \dots, S_n\}$) \rightarrow macroeconomic approach.
- “aggregate or sum of their residents” ($\sum(S_1, \dots, S_n)$) \rightarrow microeconomic approach.

The totality of any country’s external transactions is carried out by its residents, State included. The country itself, as the *set of its residents*, is no autonomous economic agent. However:

- international reserves are managed by the central bank on behalf of the *country as a whole*.
- the BoP should distinguish between “origin” (i.e. residents of the country), “administration” (i.e. the central bank) and “economic ownership” (i.e. the country as *set of its residents*) of foreign exchange reserves.

How to highlight the country's involvement from an accounting perspective:

- **commercial and financial transactions** in the BoP pertain to private and public agents (i.e. residents) but **modify the nation's position as a whole**:
 - i. a **country's economic account** (i. e. **a new version of the existing IIP**) should be created.
 - ii. the **official reserves account** would mainly deal with foreign reserves (as it already does) and represent **the account of the country taken as a whole**.
 - iii. the **reserve account** would be directly **involved in every current, capital and financial account transaction** (for example, a commercial export would lead to an increase in the country's official reserves because of the positive inflow of a sum of foreign currency).

**TODAY'S SYSTEM OF INTERNATIONAL
PAYMENTS DOES NOT RECOGNIZE THE
EXISTENCE OF COUNTRIES AS SETS OF
THEIR RESIDENTS.**

The BoP should be transformed into a bookkeeping instrument for both the *country as a whole* and its *residents*:

- the system of international payments in its current form is flawed because it is at odds with the **flow nature of money**;
- the **BoP** is a **mere collection of separate statistical data** and hardly complies with the bookkeeping identity on which it should be founded.

It is not the *trade balance* of any single country that must be in equilibrium, but its *monetary balance*, its overall inflows and outflows of foreign currencies:

- the **corollary to $IM \equiv EX$** (i.e. the identity between each country's global sales and purchases) is the **necessary equilibrium of their monetary balances**.

The reform steps:

- **BoP** to become a **bookkeeping account of the external transactions of countries**;
- creation, in each country, of a national Bureau responsible for all the payments by and in favour of the country's residents;
 - i. **internal department** (ID) turned **toward** the **country's domestic economy**;
 - ii. **external department** (ED) turned **toward the rest-of-the-world**;
- using the country's domestic currency, each payment initiated by the country's residents is carried out as a double double-entry procedure;
- example:
 - i. **importers** are credited-debited by their banks: their purchases imply **a debit** and are **matched by equivalent sales of financial claims** (deposit certificates or securities), for the amount with which they will be **credited**;
 - ii. the **Bureau's ID** is **credited** by the sum of national currency spent by importers **and debited for an equal amount** to the benefit of its ED;
 - iii. the ED will first purchase financial claims from its domestic economy and then sell them abroad in order to finance its external payment on behalf of country's importers. **Every inflow of national or foreign currencies** to each department of the Bureau will thus be **balanced by equivalent outflows**.

CONCLUDING REMARKS

Some reflections about the reasons for the status quo:

- money wrongly identified with a positive asset and vehicular essence neglected:
 - i. this principle alone *necessarily* imposes that any single agent involved in a transaction is credited (debited) and debited (credited) by the same amount. No accounting discrepancies can occur.
- “countries” or “nations” are monetarily speaking considered “sum of their residents” instead of “set of their residents”.
- Implicitly underlying simple- instead of double-entry-bookkeeping logic.
- BoP identity wrongly turned into a condition of equilibrium.

- BoP's significance due to far-reaching history from the 19th century onwards, but also to underlying double-entry bookkeeping mechanisms.
- *Every* transaction must be entered *twice*, once as a *credit (debit)* and once as a *debit (credit)*. But, since **commercial and financial registrations** are **recorded separately**, the BoP is exposed to **billion-high inaccuracies**. By doing so, the **double-entry bookkeeping logic is openly neglected**, turning the BoP into a mere statistical instrument.
- This paper as a **plea for a substantial, conceptual reform** implementing the double-entry bookkeeping already recognized to be a pillar of the BoP. This would **simplify the recording process**, now complicated by valuation and time issues (leading in turn to massive, cumulative inaccuracies).

THANK YOU! FOR FURTHER INFORMATION:



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SEE ALSO THE NUMERICAL (POST-REFORM) EXAMPLE IN THE ANNEX.