Appendix A

Table A1: Excerpt from NIPA Table 1.10 for year 2010, illustrating how the NIPA measure of corporate profits fits in within the derivation of total Gross Domestic Income, all amounts in $ billion

Line	Account title	GDI and major components	Sub-components	Sub-sub-components
1	Gross domestic income	14,915.2		
2	Compensation of employees, paid	7,969.5		
3	Wages and salaries		6,385.6	
4	To persons			6,371.6
5	To the rest of the world			14.0
6	Supplements to wages and salaries		1,583.9	
7	Taxes on production and imports	1,057.1		
8	Less: Subsidies	(55.9)		
9	Net operating surplus	3,562.8		
10	Private enterprises		3,585.7	
11	Net interest and miscellaneous payments, domestic industries			670.6
12	Business current transfer payments (net)			128.5
13	Proprietors' income with inventory valuation and capital consumption adjustments			1,032.7
14	Rental income of persons with capital consumption adjustment			402.8
15	**Corporate profits with inventory valuation and capital consumption adjustments, domestic industries**			**1,351.2**
16-19	……..			
20	Current surplus of government enterprises		(22.9)	
21	Consumption of fixed capital	2,381.6		
22	Private		1,923.5	
23	Government		458.1	
	Addendum:			
24	*Statistical discrepancy*	*49.2*		

Data is from NIPA Table 1.10 "Gross Domestic Income by Type of Income". Table A1 strives to reflect the structure of the original NIPA table but has been reformatted and shortened for clearer presentation. The table starts with total Gross Domestic Income at the top of the first data column, with the underlying major components listed below, where the components below add up to Gross Domestic Income at the top. Breakdowns of the major components are presented in subcomponent hierarchies to the right. For example, Wages and salaries "To persons" and "To the rest of the world" add up to "Wages and salaries", which added to "Supplements to wages and salaries" rolls up to "Compensation of employees, paid." Lines 16-19 in NIPA Table 1.10 introduce two further hierarchies, and are here eliminated to lighten the presentation. "*Statistical discrepancy*" represents the difference between Gross Domestic Income and Gross Domestic Product, which arises because these two amounts are independently estimated from different sources, see Appendix B for further detail.

Table A2: Excerpt from NIPA Table 7.16, illustrating the derivation of NIPA profits and taxes from corresponding IRS measures for year 2010, amounts in $ billion

Total receipts less total deductions, IRS	***1,254.2***
Plus:	
Adjustment for misreporting on income tax returns	401.5
Posttabulation amendments and revisions	78.6
Income of organizations not filing corporation income tax returns	84.9
Federal Reserve banks	72
Interest payments of regulated investment companies	(129.7)
Bad debt expense	316.3
Less:	
Tax-return measures of:	
Gains, net of losses, from sale of property	(152.3)
Dividends received from domestic corporations	(176.1)
Income on equities in foreign corporations and branches (to U.S. corporations)	(336.1)
Plus: Income received from equities in foreign corporations and branches by all U.S. residents, net of corresponding payments	395.2
All other adjustments, total	32.2
Equals: Profits before taxes, NIPAs	**1,840.7**
Federal income and excess profits taxes, IRS	***358.4***
Amounts paid to U.S. Treasury by Federal Reserve banks	79.3
U.S. tax credits claimed for foreign taxes paid	(118.1)
All other tax adjustments, total	51
Equals: Taxes on corporate income, NIPAs	**370.6**
Profits after tax, NIPAs	**1,470.1**

Table A2 is based on NIPA Table 7.16, please see original table at http://www.bea.gov/iTable/ for full details and legend. The table has been re-formatted and shortened to compress all individual items that comprise less than 5% of the top line "Total receipts less total deductions, IRS", into two aggregate "All other adjustments" items, one for pre-tax amounts, and one for tax amounts. The table has two major parts, one for pre-tax adjustments, and one for tax adjustments. The pre-tax part starts with an IRS pre-tax category "Total receipts less total deductions", introduces various NIPA adjustments (essentially, the NIPA accruals), and arrives at the NIPA measure of corporate pretax profits. Similarly, the tax part starts with an IRS measure of taxes, makes some NIPA accruals to it, and arrives at the NIPA measure of taxes on corporate income. The IRS measures are based on aggregate tax data, and are available two years after the respective fiscal period. "Profits after tax, NIPAs" is equal to pretax NIPA profits minus NIPA taxes, and is the main measure of corporate profits used in this study.

Appendix B: More information on the relative characteristics of NIPA and GAAP earnings

An important feature of NIPA earnings is its rigorous determination and double-checks from independent sources. To illustrate, consider the bottom line in Table A1 called "*Statistical discrepancy*." This discrepancy appears because GDP is estimated in two independent ways, and there is some statistical or economic error in the resulting estimates. One approach estimates Gross Domestic Income (GDI), which shows the incomes that all economic agents derive during the current period; the other approach estimates Gross Domestic Product, which is what this income is spent on, including current consumption and business and government investment. By definition, these two approaches should produce the same estimate since the two sides of GDI/GDP reflect an accounting identity. But since the two sides of GDI/GDP are estimated independently and from completely different sources (essentially, GDP estimates are based on surveys of output, and GDI estimates are based on income data), there appears a modest discrepancy, e.g., the 49.2 number for 2010 indicates that the estimate for 2010 GDI was $49.2 billion lower than the corresponding estimate for GDP.[1] One takeaway from Table A1 is that the statistical discrepancy seems small compared to the magnitude of GDI/GDP. Turning to more systematic evidence, for the 1950-2010 period the average "Statistical discrepancy" as a percentage of GDI is 0.48%. Such statistical or economic slippage in the NIPA estimates seems rather small compared to the confidence intervals that likely prevail for GAAP numbers.[2] The upshot from the independent determination of GDI and GDP, and the small magnitude of the statistical discrepancy between

[1] GDP data are generally considered more reliable because they are mostly from consistent business surveys conducted by the Census Bureau, while GDI data are from a variety of sources including financial statements and data collected by regulatory and tax authorities (NIPA Handbook 2012).

[2] Specific estimates of errors or earnings management for GAAP earnings are rare. But even using a conservative definition, DGHR finds that 20% of the firms misrepresent earnings to the tune of 10% of EPS; note that this is just the intentional manipulation, not including performance signaling management or the potentially much larger category of unintentional errors of estimation.

them is that NIPA numbers have strong internal checks and balances to ensure that they are "correct."

Another important difference between NIPA and GAAP earnings is that GAAP earnings are anchored on realized cash flows because GAAP accruals are designed to true up to the associated cash flows.[3] For example, a firm can temporarily increase earnings by understating warranty expense. But by the nature of GAAP accruals, eventually there will be a catch-up effect, and long-run warranty expense converges to long-run warranty expenditure.[4] This truing-up to cash flows is absent in NIPA earnings, which often include or exclude items that have clear cash flow consequences, e.g., NIPA earnings exclude gains and losses on sales of property and securities.[5]

Further reflection reveals that the absence of truing-up to cash flows in NIPA earnings is not necessarily a hindrance, and in fact whether it is considered an advantage or disadvantage partly depends on the decision setting and the level of aggregation. Recall that NIPA earnings are defined as "profits from current production," where the idea is that from the whole economy's perspective value is added in real operations rather than in the re-shuffling of profits in transactions involving capital assets. The so-called "round-trip" transactions in capital assets provide an instructive illustration about this important distinction (e.g., the well-publicized swaps of telecom capacity between Qwest and Global Crossing). For example, assume that telecom firm A sells

[3] There are some narrow exceptions to this general intuition for GAAP accruals. For example, stock option expense does not true up to the ultimate cost of issuing options, i.e., to the difference between stock price and exercise price at exercise.

[4] Of course, when a firm is growing, there could be a large and growing disparity between cash spent and recognized expense. For example, cash spent on PPE will differ from PPE depreciation by the amount of PPE on the balance sheet, and this disparity will continue to grow for as long as the firm is growing.

[5] In that sense, NIPA earnings can be thought of as akin to "pro forma earnings", which often exclude items considered "non-operating" or "unusual", although they can have real cash flow effects. Unlike pro forma earnings, however, whose determination can be opportunistic and also inconsistent over firms and time (Doyle, Lundholm and Soliman 2003), NIPA earnings are crisply defined and temporally consistent.

some PPE to telecom firm B, and soon after buys a nearly identical type and amount of PPE from the same firm B, where transaction prices on both sides exceed the cost basis. From the point of view of GAAP accounting, narrowly interpreted, both firms record a profit, and the profit is "real" because it is backed by actual cash flows. But from the point of view of the whole economy these two transactions are a wash, and there is no profit or really any change in the firms' condition before and after the transactions (and eventually, GAAP accounting has also taken a dim view of such transactions).

The more general point is that while obvious round-trip transactions are more of an oddity at the level of identifiable firm-pairs, variations of them are common in more complicated multi-firm interactions. For example, when the stock market is booming, there is often a flurry of capital gains realizations, which makes it seem that firms are more profitable. But from the point of view of the whole economy these profits are illusory in the sense that they do not change the output and profits from continuing real operations (and become even more questionable when market prices can deviate from fundamental values). In that sense, aggregate NIPA profits correctly discount the effect of transactions in capital assets on reported profits. A more subtle point is that even at the level of the individual firm, while realized capital gains and losses are "real" in terms of cash flow realizations, they are typically transient and "illusory" in terms of the continuing productive capacity of the firm, and it is this continuing earning power that investors typically seek to find.

Appendix C: Variable definitions

Variable	Definition
NIPA ΔE_t	Earnings changes for time t (ΔE_t) are defined as log10(E_t/E_{t-1}). NIPA earnings is profits before tax without inventory valuation adjustment and capital consumption adjustment. The data is collected from BEA website Table 1.12 (National Income by Type of Income) line item 43.
GAAP ΔE_t	Earnings changes for time t (ΔE_t) are defined as log10(E_t/E_{t-1}). GAAP earnings is aggregate net income across firms in year *t*.
NIPA 5-year ΔEarnings	The ratio of actual to implied variances for 5-year NIPA earnings changes. The actual variance for five-year changes in earnings is computed as the variance of log(E_t/E_{t-5}). Implied 5-year variance is computed as five times the variance of annual earnings changes.
GAAP 5-year ΔEarnings	The ratio of actual to implied variances for 5-year GAAP earnings changes. The actual variance for five-year changes in earnings is computed as the variance of log(E_t/E_{t-5}). Implied 5-year variance is computed as five times the variance of annual earnings changes.
ΔNIPA Adjusted Earnings	The log of NIPA Adjusted Earnings changes. NIPA Adjusted Earnings is profits after tax with inventory valuation adjustment and capital consumption adjustment. The data is collected from BEA website Table 1.12 (National Income by Type of Income) line item 15.
ΔCash Flow from Operations	The log of Cash Flow from Operations changes. Cash Flow prior to year 1987 is calculated by subtracting changes in working capital, excluding cash and cash equivalents and short-term debts, from funds available from operations. Cash Flow after 1987 is operating activities net cash flow (Compustat: OANCF). The first year of Cash Flow availability is 1971.
ΔGAAP Revenue	The log of GAAP Revenue changes. Revenue represents aggregate gross sales (Compustat: SALE).
ΔGAAP Operating Income before Depreciation	The log of changes of GAAP Operating Income Before Depreciation. GAAP Operating Income Before Depreciation is aggregate GAAP operating income before depreciation (Using Compustat definition).
ΔGAAP Income before Taxes and Special Items	The log of changes of GAAP Income before Taxes and Special Items. GAAP Income Before Taxes and Special Items is the aggregate pre-tax GAAP income excluding special items (Compustat: OIADP-XINT+NOPI).