

Chapter 2

China's National Balance Sheet: Preparation and Analysis

2.1 Basic Framework

A national balance sheet aims to study a country's overall economic stocks. According to the System of National Accounts (SNA2008) jointly developed by the UN, IMF, OECD and the European Commission, the balance sheet of a country includes six major sectors: non-financial corporations, financial corporations (including the central bank),¹ general government (including the governments at all levels, social security funds and non-profit organizations controlled by the governments), residents (also called households), non-profit organizations serving households (NPISHs),² and the non-household sector (i.e. the external sector).

Based on the relevant international standards and the related description of NBS (2007), we have compiled the simple framework of national balance sheet suitable for China's national conditions (see Table 2.1). In the table, the main columns cover assets, liabilities and their difference, and the auxiliary column covers various sectors of the national economy and their aggregates.

The basic logic relationship of balance sheet can be broadly summarized as follows:

$$\text{Total assets} = \text{liabilities} + \text{net assets} \quad (2.1)$$

$$\text{Total assets} = \text{non-financial assets} + \text{financial assets} \quad (2.2)$$

¹The central bank was also included in the government sector by some scholars, such as Allen et al. (2002).

²They refer to non-government-controlled organizations that serve households free of charges or charging only nominal fees, including professional associations, religious organizations, charities and research institutes.

Table 2.1 Framework of national balance sheet

	Non-financial corporations	Financial institutions	Governments	Households	Total of domestic sectors	External sector	Total
Non-financial assets							
Fixed assets							
Inventory							
Other non-financial assets (land, intangible assets, deferred assets and other assets)							
Financial assets/liabilities							
(I) Domestic financial assets/liabilities							
Currencies and deposits							
Loans							
Stocks and other equities							
Debt securities							
Insurance reserves							
Other receivables/payables							
(II) External financial assets/liabilities							
Direct investment							
Security investment							
Other investments							
(III) Reserve assets							
Gold reserves and special drawing right							
Foreign exchange reserves							
Difference between assets and liabilities (net asset)							

As liabilities are financial liabilities³ and the financial claims in the national balance sheet (of a country) and the financial liabilities (of the other country) are mirror images, they occur simultaneously and are equal in size and opposite in direction. That is, on a global scale (or in all economies), financial assets = financial liabilities, so we can combine (2.1) and (2.2) to obtain:

$$\text{Net assets} = \text{non-financial assets} \quad (2.3)$$

To make Eq. (2.3) tenable, the premise is to include the external sector. To include the external sector is, on the one hand, to meet the need for accounting balance, and on the other hand, it will make sense to study the external sector only if we regard the global economy as an international organization on the whole as the United Nations or the IMF does (in Table 2.1, the global economy is regarded as the study object). As far as individual economies are concerned, the aggregate of the domestic sectors has a real sense, so the two columns of external sector and aggregate can be ignored.

Going a step further, financial assets/liabilities include three items: item (I) is domestic financial assets/liabilities, and item (II) and (III) are actually International Investment Position (IIP) as we usually refer to. Because domestic financial assets = domestic financial liabilities (that is the assets and liabilities in item (I) are fully offset), then the total net financial assets of the domestic sectors are equal to the sum of item (II) and (III) and also equal to net IIP, so there exists:

$$\begin{aligned} \text{Net assets of the domestic sectors} &= \text{non-financial assets} \\ &\quad + \text{net financial assets of the domestic sectors} \\ &= \text{non-financial assets} + \text{net IIP} \end{aligned} \quad (2.4)$$

Comparing (2.3) and (2.4), we can find that, when specifically studying an economy, the consolidated balance sheet tends to lose a lot of useful information. Therefore, SNA2008 takes a reserved attitude towards the consolidation of balance sheets.

The sectoral division, subject categories, aggregation methods for national balance sheets and some accounting equations given above constitute the theoretical basis for the preparation of balance sheet.

³As the debtor-creditor relationship does not exist for non-financial assets, they only reflect the asset side of the holder, i.e. the user, but are not reflected in the liability side, i.e. the originator. Thus, the liability side of balance sheet only includes financial liabilities.

2.2 Preparation of National Balance Sheet

According to the analytical framework described above, in this chapter, we have tentatively prepared China's national balance sheets of 2007–2011 using publicly available data and relevant theoretical assumptions and estimation methods.

The asset side of national balance sheet includes the two major items of non-financial assets and financial assets. Non-financial assets include residents' real estate and automobiles, rural productive fixed assets, cooperate fixed assets, inventories, cooperate intangible assets and business reputation, administrative institutions' fixed assets, public institutions' intangible assets and government-owned resource assets (land); financial assets include currencies, deposits, loans, bonds, stocks, securities investment fund shares, clients' margins of securities companies, insurance reserves, settlement funds, transactions of financial institutions, reserves, cash holdings, lending of the central bank, other items (net), foreign direct investment, other external claims and obligations, and international reserve assets.

The liabilities side includes currencies, deposits, loans, bonds, stocks, securities investment fund shares, clients' margins of securities companies, insurance reserves, settlement funds, transactions of financial institutions, reserves, cash holdings, lending of the central bank, other items (net), foreign direct investment, other external claims and obligations, international payment errors and omissions and other items. By definition, liabilities refer only to financial liabilities, without physical counterparts. The difference between assets and liabilities is net assets, which corresponds to the owner's equity or capital in the financial statements of enterprises.

Here are some explanations about the estimates: (1) non-financial assets mainly include the relevant assets of the subsectors such as households, non-financial corporations and governments. (2) The basic method to estimate financial assets and financial liabilities is to add up the flow data of the following years on the basis of the stock of funds accounts of a base year. Based on this idea, in this study, we added up the data of the domestic sectors in the flow of funds accounts (financial transactions) of the following years published by the National Bureau of Statistics (NBS) on the basis of the research on China's national financial assets and liabilities in 1998 conducted by NBS (Department of National Accounts, NBS 2003).⁴ We did not use the sectoral accumulation method because it is difficult to ensure complete correspondence and matching between assets and liabilities through direct accumulation as there may be differences in the estimation methods and data sources of various sectors. (3) As the stock of funds accounts in 1998 did not include the items such as securities investment fund shares, clients' margins of securities companies, settlement funds, transactions of financial institutions,

⁴In fact, the Survey and Statistics Department of the People's Bank of China has completed the preparation of the financial stock of funds accounts for 2004 and 2005. If the data are available, the estimates may be more accurate.

reserves, cash holdings, lending of the central bank, and international payment errors and omissions, we added up only the flow data of the previous years (the data of the flow of funds accounts published by NBS from 1992). (4) Given that the 1998 stock of funds accounts and the flow of funds accounts of the previous years were not entirely consistent in items, when determining the base year data, necessary adjustment was made for the two items of “Other Items (Net)” and “Other External Claims and Obligations”.

According to the above estimation method, Table 2.2 lists China’s national balance sheets of 2007–2011.

2.3 National Balance Sheet Analysis

2.3.1 Total Size

- (1) The national balance sheet has expanded significantly, with net assets of more than 300 trillion yuan

As shown in Table 2.2, during 2007–2011, China’s national balance sheet expanded sharply: the total assets increased from 284.7 to 546.5 trillion yuan (see Fig. 2.1); the total liabilities increased from 118.9 to 242 trillion yuan (see Fig. 2.2); and the net assets increased from 165.8 to 304.5 trillion yuan (see Fig. 2.3). The three indicators almost doubled in five years, and their growth rates were all faster than the growth rate of nominal GDP in the same period.

- (2) The increase in net assets was continuously lower than GDP, showing that not all of the GDPs will form a real accumulation of wealth.

To put it simply, the relationship between a country’s GDP and net assets is a flow-stock relationship. On the assumption of an ease policy, a country’s stock of wealth (i.e. net assets) is obtained by adding up the flows of GDP of various years. Of course, as the two statistical indicators are different in coverage, the total flow of GDP is not exactly equal to the stock of wealth in most cases.

To find the sum of the flows of GDP, the stock of wealth in the base year is needed. To avoid this hard nut, we have chosen to compare the increase in net assets with GDP. As shown in Fig. 2.4, the increase in net assets of each year during 2008–2011 calculated based on the national balance sheet is closer to the GDP of the year. However, when studying further, we will find that the increase in net assets is continuously less than the GDP of the year. Apart from the possible aforementioned statistical reasons, this has also revealed a more important message: although the growth rate of GDP each year is high, not all of GDPs will form a real accumulation of wealth. This is because the GDP indicator is flawed, some invalid investment (leading to excess capacity) and even the activities destroying resources and environment are included in GDP, so these should be deducted from the wealth.

Table 2.2 China's national balance sheet: 2007–2011 (unit: 1 billion yuan)

Item\Year	2007	2008	2009	2010	2011
Non-financial assets	158,311.0	185,944.5	213,630.2	244,233.6	288,550.7
Residents' real estate	56,700.3	57,816.8	73,911.3	80,902.3	96,287.5
Residents' automobiles	2357.6	2811.8	3512.3	4463.7	5445.8
Rural productive fixed assets	1488.4	1589.7	1727	1819.1	2708.3
Corporate fixed assets	39,852.0	50,929.3	55,091.7	61,461.5	68,962.5
Inventories	13,878.4	17,844.8	21,131.9	28,699.8	36,697.1
Other corporate non-financial assets	8438.2	13,070.6	14,324.6	16,636.9	19,871.4
Administrative institutions' fixed assets	4304	4759	5293	5868.2	6528
Public institutions' intangible assets	20	24.2	31.2	44.9	48
Government-owned resource assets (land)	31,272.1	37,098.4	38,607.1	44,337.1	52,002.2
Financial assets	126,386.6	150,754.3	187,107.8	224,414.2	257,961.3
Currencies	2924.426	3310.926	3691.226	4302.926	4882.126
Deposits	39,226.35	47,387.05	61,327.05	74,705.05	86,127.05
Loans	30,036.24	36,107.74	48,219.74	57,942.44	67,518.84
Bonds	13,007.52	15,686.22	18,144.82	20,966.52	22,586.02
Stocks	8476.147	8763.147	9498.447	10,442.547	10,942.747
Securities investment fund shares	810.7	1142.7	1023.8	993.4	1219.2
Clients' margin of securities companies	1267.2	733.2	1352.1	1116.7	470.1
Insurance reserves	2971.87	3829.57	4708.67	5339.16	6073.96
Settlement funds	-213.162	-213.162	-213.162	-213.162	-213.162
Transactions of financial institutions	3049.717	2630.017	2765.417	2997.317	3228.117
Reserves	5672.43	7782.43	8933.13	12,259.23	15,874.63
Cash holdings	235.953	240.953	280.953	356.053	463.253
Lending of the central bank	-808.923	-857.423	-1016.32	-969.417	-1042.12

(continued)

Table 2.2 (continued)

Item\Year	2007	2008	2009	2010	2011
Other items (net)	3098.759	4055,959	5455.059	7394.559	10,069.86
Foreign direct investment	717.878	1089,478	1389.378	1796.568	2117.668
Other external claims and obligations	3865.634	4105.734	3866.134	4109.534	4262.534
International reserve assets	12,047.903	14,959.803	17,681.403	20,874.803	23,380.503
Total assets	284,697.6	336,698.8	400,738	468,647.8	546,512
Financial liabilities	118,945.77	140,234.37	174,534.98	209,742.8	241,967.2
Currencies	3037.58	3448.78	3853.38	4504.12	5120.32
Deposits	39,599.05	47,788.15	61,734.15	74,800.15	86,142.15
Loans	30,090.44	35,878.94	47,687.94	57,292.44	66,851.64
Bonds	13,168.07	15,846.77	18,305.37	21,127.07	22,746.57
Stocks	9315.481	9654.681	10,351.281	11,450.581	11,992.181
Securities investment fund shares	810.7	1144.3	1023.7	992.9	1221.1
Clients' margin of securities companies	1267.2	733.2	1360.4	1123.1	472
Insurance reserves	2971.969	3829,669	4708.769	5339.259	6074.059
Settlement funds	-223.405	-223.405	-223.405	-223.405	-223.405
Transactions of financial institutions	3280.677	2760.077	3292.877	4299.377	4718.177
Reserves	5423.763	7533.763	8684.463	12,010.56	15,625.96
Cash holdings	713.392	718.392	759.992	831.391	935.591
Lending of The Central Bank	-1273.86	-1322.36	-1481.26	-1434.36	-1507.06
Other items (net)	2578.101	3535.301	4934.401	6873.901	9549.201
Foreign direct investment	6454.98	7482.08	8016.18	9269.08	10,691.48
Other external claims and obligations	2478.447	2354.247	2752.447	3116.347	3412.847
BOP errors and omissions	-746.812	-928.212	-1225.71	-1629.71	-1855.61
Net financial assets	7440.83	10,519.93	12,572.82	14,671.4	15,994.1
Net assets	165,751.83	196,464.43	226,203.02	258,905	304,544.8

Taking 2010 for example, the difference between the increase in net assets and GDP is up to 7.5 trillion yuan, accounting for 18.7% of GDP. Although 7.5 trillion yuan may not be all wasted or lost, this at least shows the quality of the year's GDP is highly questionable.

The above analysis fully reveals the importance of balance sheet analysis. That is, wealth as a stock indicator can be used to measure the quality of GDP growth and whether there is something wrong with the development mode.

2.3.2 Structure

The balance sheet provides two groups of meaningful data. The analysis of the relationship between different assets and different liabilities and between assets and liabilities may lead to a number of important conclusions reflecting the national economic structure. Based on these conclusions, coupled with other data and analysis, we can better plan our development direction and path.

In all structural data, we pay particular attention to the country's overall debt ratio, financial interrelation ratio, inventory percentage in total assets and changing trends of net financial assets.

- (1) China's overall debt to assets ratio is generally showing an upward trend and the quality and efficiency of economic operation is low.

Figure 2.5 shows that China's overall debt to assets ratio, i.e. the ratio of total liabilities to total assets, is generally showing an upward trend. Especially during 2009–2010, a period seriously affected by the global financial crisis, China's overall debt to assets ratio saw a comparatively sharp increase, and later, despite a slight drop in 2011, it was far higher than the level in 2007. This structural change shows that in the formation of national assets, reliance on debt financing has increased, thus causing an increase in debt risks. More importantly, during this period, China's net asset expansion was generally slower the rate of expansion of total assets and total liabilities. This unequivocally tells us that: the wealth accumulation effects of

Fig. 2.1 China's total assets: 2007–2011 (unit: 1 billion yuan). *Source* Estimates of the research group

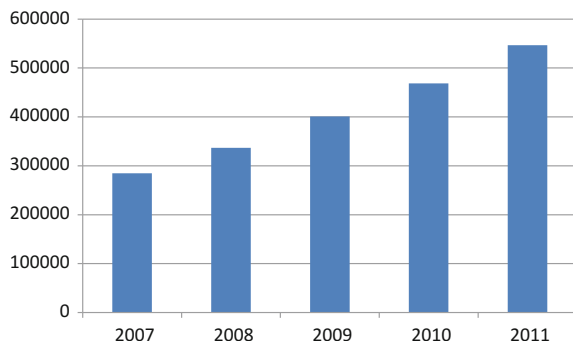


Fig. 2.2 China’s total liabilities: 2007–2011 (unit: 1 billion yuan). *Source* Estimates of the research group

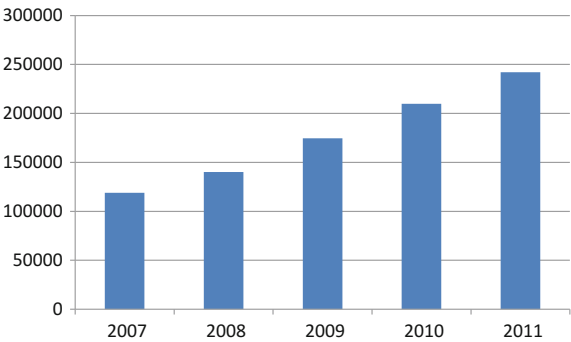


Fig. 2.3 China’s total net assets during 2007–2011 (unit: 1 billion yuan). *Source* Estimates of the research group

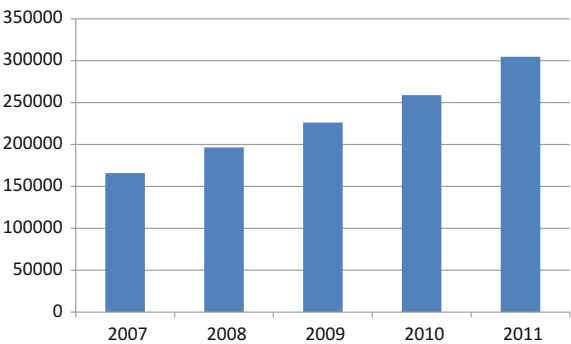
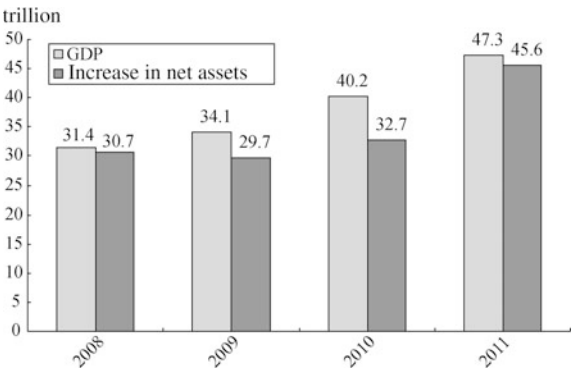


Fig. 2.4 Changes in GDP and the increase in net assets (unit: 1 trillion yuan)



economic growth in China are weak, and the low quality and efficiency as a traditional problem has not been essentially addressed.

(2) “Financial interrelation ratio” is still at a low level

During the investigation period, the size of China’s financial assets and non-financial assets expanded rapidly (see Figs. 2.6 and 2.7). As the size of financial assets expanded at a faster rate, China’s financial interrelation ratio had increased. This dynamic trend is similar to the development paths of other countries.

Fig. 2.5 Changes in China's debt to assets ratio: 2007–2011 (unit: %). *Source* Estimates of the research group

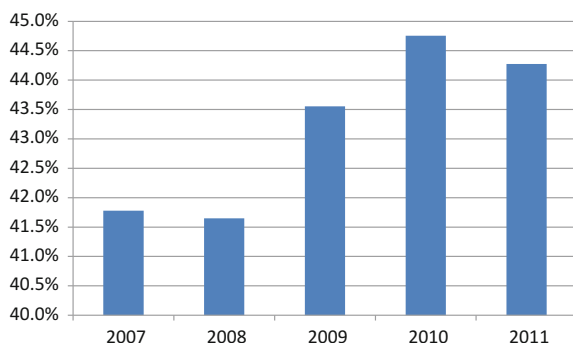


Fig. 2.6 China's total financial assets: 2007–2011 (unit: 1 billion yuan). *Source* Estimates of the research group

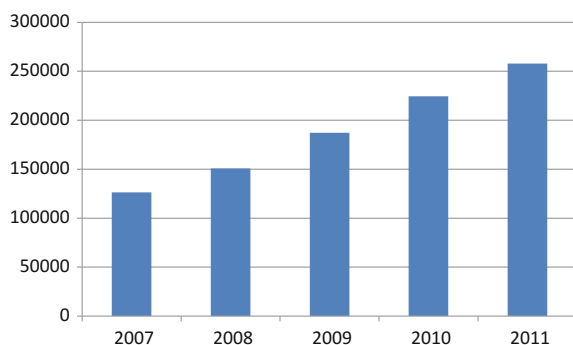
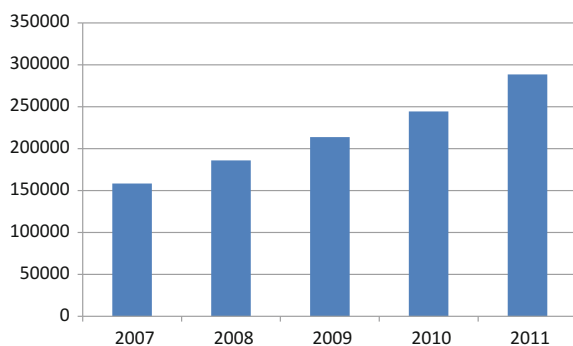


Fig. 2.7 China's total non-financial assets: 2007–2011 (unit: 1 billion yuan). *Source* Estimates of the research group



Financial interrelation ratio (FIR) was proposed by the American economist Goldsmith and Lipsey (1963). It refers to the ratio of a country's financial assets to real assets, and it is used to measure the extent of financialization of a country's economy.⁵ Goldsmith's first study was completed in 1969, covering a financial

⁵Here, Goldsmith's concept is not very rigorous. For example, financial assets include financial assets and foreign assets, in which financial assets also include the financial assets in the financial

Fig. 2.8 Changes of FIR in industrialized countries (1850–1978). *Sources* Goldsmith (1985) and Tables 4–6



development history of 100 years (1860–1963) of 35 countries (Goldsmith 1969); the second study was completed in 1985 (Goldsmith 1985), covering a financial development history of nearly 200 years' (1688–1978) of 20 countries.

Figure 2.8 shows that in the industrialized countries that were studied, FIR was in a rising trend on the whole. In general, it rose from about 0.4 in 1850 to 0.8 or so at the end of the nineteenth century and reached and even exceeded 1 in the 1920s before the Great Depression. Since then, FIR continued to rise, but hit the bottom during the World War II and then rose again. Based on the data in Table 2.3, the FIR of the UK, as an established developed country, has always been the highest in the world and continued to rise in recent years and even reached above 4 in 2011. This fully demonstrates the characteristics of the UK as one of the world's largest offshore financial markets and the world's largest financial centers. China's FIR rose from 0.80 to 0.92 in the study period (later declined slightly), equivalent only to the level of the US before the Great Depression and lower than the general level of the US after the World War II (Goldsmith and Lipsey 1963; Carlson 1991). This to some extent shows that the financial deepening in China is still at a low level, and the financial development potential is still huge.

FIR, as an indicator reflecting the level of financial development, also provides a unique perspective for depicting the structural characteristics of a country's economy. As shown in Table 2.3, the countries where the real economy sectors (especially manufacturing) were well-developed, such as Germany and Japan, had a relatively low FIR. This reflects the fact that they emphasized the accumulation of non-financial assets (such as plants, equipments and intangible assets etc.), demonstrating their position as a global manufacturing power. In contrast, the UK had a relatively higher FIR, reflecting that the financial industry was a pillar

(Footnote 5 continued)

sector. As a result, while selecting the variables, banks' assets and liabilities are included, and in many cases, the businesses between banks were not mutually offset.

Table 2.3 Comparison of FIRs of different countries: 2007–2011

Country/year	2007	2008	2009	2010	2011
China	0.80	0.81	0.88	0.92	0.89
Japan	2.07	1.92	2.01	2.05	–
Germany	1.75	1.68	1.69	1.71	1.65
The UK	3.14	4.56	3.91	3.90	4.12
Canada	2.19	2.07	2.18	2.23	2.18

Source Estimates of the research group

industry in the UK's economic structure and showing the fact that it was an international financial center.

By comparing China's relatively low FIR and rapid increase of M2/GDP ratio in the same period, we can also find some shortcomings of China's financial structure. First, the relatively low FIR reflects that China's financial system was not yet mature, and especially the development of direct financing was seriously lagging behind; second, FIR was relatively low but the M2/GDP ratio increased rapidly. The opposite trend of the two financial indicators shows that the proportion of direct financing was overly low, the funds needed in economic activities rely heavily on credit creation in the banking system; third, the low FIR reflects that there was a larger proportion of fixed capital formation in China, resulting in decrease in money circulation speed, and this requires issuing a large amount of money to make up the deficit.

- (3) A sharp increase of percentage of inventories in total assets and increasingly serious excess capacity

Among the total assets, non-financial assets mainly reflecting wealth accumulation in the real economy increased from 158.3 to 288.6 trillion yuan (Fig. 2.7), among which “inventories”, “other non-financial assets of enterprises”, residents' automobiles” and other subjects expanded most significantly. Among them, the phenomenon of surge of “inventories” is more complicated. This may reflect enterprises' expectations for economic recovery (mostly presented as positive restocking, which can be understood as positive inventory increase) or may also be related to the ubiquitous serious overcapacity in today's China (mostly presented as passive accumulation of inventories, which can be understood as negative inventory increase). We tend to believe that the later cause, i.e. overcapacity, may be a major factor for the surge in the proportion of inventories. The increase in the proportion of “other non-financial assets of enterprises” largely reflects the greater importance of intellectual property rights and other intangible assets and the rise in the value hierarchy of Chinese enterprises. The increase in the proportion “residents' automobiles” indicates the rapid accumulation of residents' wealth.

- (4) The changes in net financial assets and net IIP were broadly consistent

Table 2.2 shows that China's net financial assets increased from 7.4 trillion yuan in 2007 to nearly 16 trillion yuan in 2011. Over the same period, China's net IIP increased from \$1.2 trillion to \$1.7 trillion (see Table 14.1). By converting based on the exchange rate, the difference between the two items is not extremely great, and

their changing trends are consistent. According to the previously mentioned equations:

$$\begin{aligned}\text{Net assets of the domestic sectors} &= \text{non-financial assets} \\ &\quad + \text{net financial assets of the domestic sectors} \\ &= \text{non-financial assets} + \text{net IIP}\end{aligned}$$

It can be concluded that the net financial assets of the domestic sectors are equal to the net IIP. That is, if the national balance sheet (particularly financial assets and financial liabilities) is prepared in a reasonable manner and the data are reliable, then the net financial assets will be equal to the net IIP theoretically. In fact, due to the imperfectness of the existing statistical data system and comparatively low data quality as well as the difficulty in the availability of data, the estimation results are not completely accurate, so the net financial assets are not fully consistent with the net IIP. By comparing the data above, the magnitudes of the two are basically consistent and their overall changing trends also are basically the same. This confirms that the preparation of the national balance sheet is generally reliable.

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