

## ANNEX

## ANNEX 1 FINANCIAL STRENGTH INDEX

Financial Strength Index (FSI) is constructed and calculated based on the latest banking sector developments.

Table 23 shows the financial indicators that help calculate the index. They assess the banking sector's financial strength, and the developments and magnitude of the main risks it is exposed to. The table also shows the sign of the impact of indicators and their weights in the formula used to calculate each sub-index. The positive sign shows the positive effect that the increase of each specific indicator has on the sub-index, while the negative sign shows the negative effect of this increase<sup>1</sup> on the sub-index.

Table 23 FSI components

	Financial Strength Indicators	Direction of the impact	Weight
Asset quality	NPLs gross/Total	negativ	0.33
	NPLs net/Shareholders' equity	negativ	0.33
	Fixed assets/Total assets	negativ	0.33
Liquidity	Liquid assets/Total assets	pozitiv	0.40
	Assets of up to 3-month maturity/Liabilities of up to 3-month maturity	pozitiv	0.60
Exchange rate risk	Short and long FX position/Regulatory capital	negativ	0.50
	FX net general position /Regulatory capital	negativ	0.50
Profitability	Net profit/Total assets	pozitiv	0.50
	Net profit/Shareholders' equity	pozitiv	0.50
Capital adequacy	Free capital/Total assets**	pozitiv	0.50
	Capital adequacy ratio	pozitiv	0.50
Interest rate risk	(ALL Gap sensitive to interest rate up to 1 month)/Shareholders' equity***	negativ	0.50
	(FX Gap sensitive to interest rate up to 1 month)/Shareholders' equity	negativ	0.50

\* Fixed assets are calculated as the sum of fixed assets and net NPLs.

\*\* Free capital is calculated as the difference between shareholders' equity and fixed assets.

\*\*\* The difference between assets and liabilities of up to 1 month, both in domestic and foreign currency, shows the mismatching between interest rate-sensitive short-term assets and liabilities, which may trigger losses in case of adverse movements in this rate.

The time series of indicators (ratios) used to construct the sub-indices are standardized. The standardization process is carried out by measuring the distance between the real value of the indicator (ratios) in a given moment

<sup>1</sup> According to this methodology, the negative sign does not mean a negative value. The sign shows only the direction of the effect of each specific indicator (ratio) on the index. The positive sign means that the index increases due to an increase in the ratio, while the negative sign means that the index falls because of this increase.

and the average of values over the period, in terms of standard deviation.<sup>2</sup>

A new series  $Z$  is derived using the formula:

$$Z = \frac{X - \mu}{\sigma} \quad (1)$$

where  $X$  is the value of the ratio in each given moment,  $\mu$  is the average value of the ratio over the selected period, and  $\sigma$  is the standard deviation. To construct the sub-indices referred to above, the standardized values of the ratios according to the formula (1) are multiplied by the weights assigned to the ratios in the table above and ultimately, they are summed. An adjustment has been made in order to turn all the standardized values of the  $Z$  series positive. According to the methodology, a base period is selected, which is assigned the value of 100<sup>3</sup>, and the indices are calculated using direct proportions if the increase in the ratios making up the sub-indices is favourable; otherwise, indirect proportions<sup>4</sup> are used. Finally, the FSI is calculated as the arithmetic average of the sub-indices.

You will find below the assessment of the sub-indices forming the FSI for the banking system and banks peers groups as at the end of 2011 H1.

**Asset Quality Sub-Index<sup>5</sup>:** Its downward performance signals the negative impact on the banking sector's position and vice versa. Asset quality sub-index continued to show a declining tendency according to its historical values. As at the end of 2011 H1, it fell to 65.3, from 71.2 as at end-2010 and 74 in the same period a year earlier. The values of this sub-index have fluctuated markedly from the average of the period of 85.9. The base ratios forming this sub-index increased in June 2011 compared with the base period. The continuous increase in these indicators shows the downward quality of the banking sector assets.

**Liquidity Risk Sub-Index:** Its downward performance signals the negative impact on the banking sector's position and vice versa. As at the end of 2011 H1, the liquidity sub-index dropped to 66.7 compared with 79.5 as at end-2011 and 76 in the same period a year earlier. The value of this sub-index remains below the average of the period. Its decline has been triggered by one of its constituent ratios, i.e., assets of up to 3-month maturity to liabilities of up to 3 month maturity, which has dropped by 10 percentage points relative to end-2010.

<sup>2</sup> In this way, we derive the difference between the ratio in each period and the average for the entire stated period (In our case December 2005-December 2010). This difference is later divided by the standard deviation of the selected period.

<sup>3</sup> In our case, December 2005.

<sup>4</sup> A typical case in the use of indirect proportions relates to the Asset Quality Sub-Index where the increase in the ratios forming this sub-index (such as NPLs to total loans or net NPLs to shareholders' equity) in fact causes the fall in the asset quality sub-index, as their increase is unfavourable to the banking system. The signs or the direction of the effects shown in Table 23 help decide whether direct or indirect proportions should be used

<sup>5</sup> Indirect proportion is used to construct this sub-index.

Exchange Rate Risk Sub-Index<sup>6</sup>: Its upward performance signals the positive impact on the banking sector's position and vice-versa. As at the end of 2011 H1, the exchange rate sub-index increased to 115.5, from 110.7 at end-2010 and 111.1 in the same period a year earlier. The improvement in this sub-index has been mainly triggered by the decreased ratio of FX open general position to regulatory capital<sup>7</sup>. The increase in this sub-index signals restriction in the magnitude of the banking system's exposure to exchange rate movements.

Profitability Sub-Index: Its downward performance signals the negative impact on the banking sector's position and vice versa. As at end 2011 H1, the value of this sub-index fell to 73.6, from 84.2 at end-2010 and 86.2 in the same period a year earlier. The decline in the value of this sub-index has been mainly triggered by the decreased ratio of net profit to total assets<sup>8</sup>. The downward performance of indicators composing this sub-index signals the negative impact on the banking sector's position.

Capital Adequacy Sub-Index: Its downward performance signals the negative impact on the banking sector's position and vice versa. This sub-index is equally composed of the free capital/total assets ratio and the CAR. In June 2011, it fell to 52.3, from 76.6 at end-2010 and 87.4 in the same period a year earlier. The value of this sub-index is much below the historical average, which is estimated at 87.8. This decline has been triggered by the ratio of free capital<sup>9</sup> to total assets, which was 3.2% in June 2011, from 4.7% at end-2010.

Interest Rate Risk Sub-Index<sup>10</sup>: Its upward performance signals the positive impact on the banking sector's position and vice-versa. As at the end of 2011 H1, the performance of interest rate risk sub-index highlights decreased exposure of the banking system to interest rate risk relative to end-2010; however, this risk appears higher than in the same period a year earlier. Concretely, in June 2011, the value of this sub-index amounted to 102.9, from 95.3 in December 2010 and 108.3 in June 2010.

Financial Strength Index (FSI) is calculated as the arithmetic average of all the sub-indices referred to above. Their combined effect made the banking system's FSI fall to 79.4 at the end of 2011 H1, from about 86.3 at end-2010, which is below the average of the period of 95.5.

<sup>6</sup> Indirect proportions have been used to construct this sub-index due to the negative sign (direction of the impact) in the table.

<sup>7</sup> The ratio was 3.73% in June 2011, from 5.03 in December 2010.

<sup>8</sup> The ratio was 0.22% in June 2011, from about 0.77% in June 2010.

<sup>9</sup> Given that the free capital is calculated as a difference between shareholders' equity and fixed assets, where the latter ones are calculated as a sum of fixed assets and net non-performing loans, it is precisely the substantial increase in the net non-performing loans that has triggered the decline in the free capital. Net NPLs increased about 32.6% in June 2011 relative to December 2010.

<sup>10</sup> Interest rate risk is measured through the time inconsistency of assets and liabilities that exposes the banking system to interest rate movements. Indirect proportion has been used to measure this sub-index.

It is estimated that at end-2011 H1, the FSI value fell to 79.4 from about 86.3 in H1. The fall in the FSI by about 7.9% owes to the decline in loan portfolio quality, CAR, liquidity and banking system profitability. In the meantime, the positive performance owes to lower exposure to exchange rate and interest rate movements.

Chart 86 presents graphically the performance of the sub-indices and the FSI for the banking system.

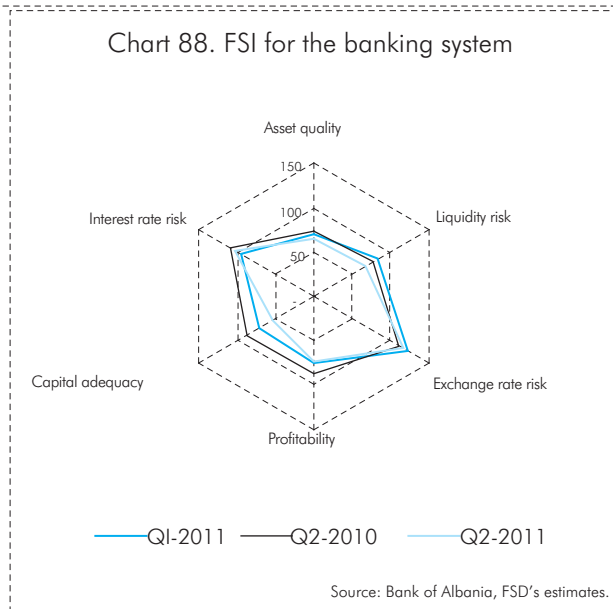
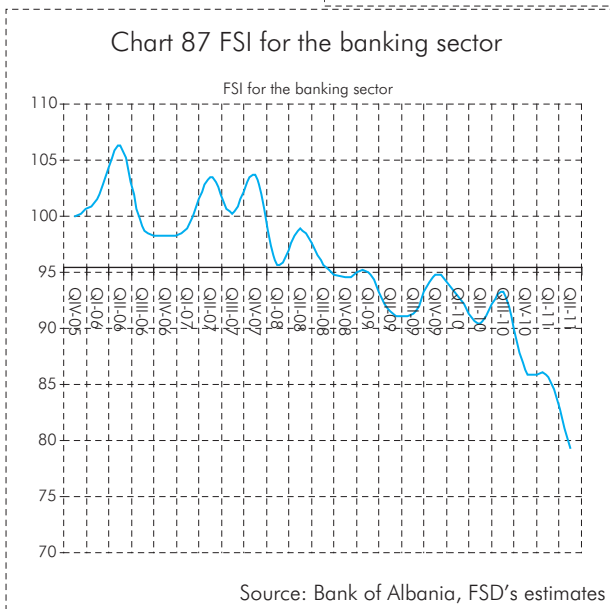
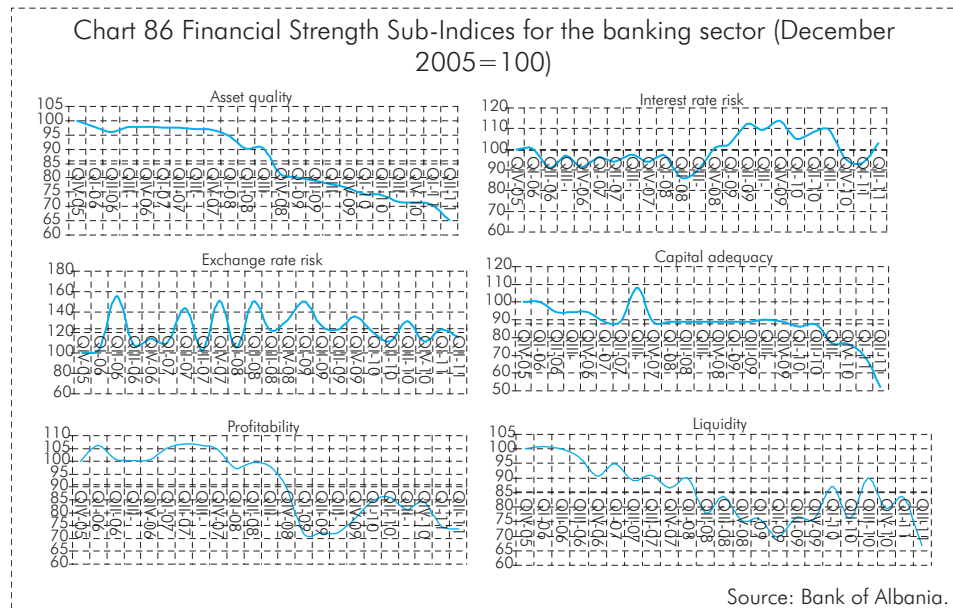


Table 24 Figures on the sub-indices and the FSI

Sub-indices	Asset Quality	Liquidity Risk	Liquidity Risk	Profitability	Capital Adequacy	Interest rate Risk	Financial Strength Index
Dec 05	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mar 06	97.96	100.87	103.92	106.37	100.00	100.19	101.55
Jun 06	96.01	100.13	155.77	100.76	94.52	91.03	106.37
Sep 06	97.96	97.28	107.84	100.19	94.52	96.94	99.12
Dec 06	97.96	90.71	114.27	100.56	94.52	91.42	98.24
Mar 07	97.54	94.93	110.67	105.13	89.04	96.29	98.93
Jun 07	97.54	89.23	144.05	106.69	89.04	94.14	103.45
Sep 07	97.11	90.97	102.09	106.18	107.95	97.45	100.29
Dec 07	96.70	86.51	150.96	104.57	89.04	94.20	103.66
Mar 08	94.79	89.85	105.51	97.40	89.04	97.03	95.61
Jun 08	90.05	77.96	150.11	99.61	89.04	86.44	98.87
Sep 08	90.42	83.79	122.09	98.09	89.04	89.95	95.56
Dec 08	81.42	75.24	132.17	89.66	89.04	100.17	94.62
Mar 09	80.06	75.74	150.11	71.61	89.04	102.86	94.90
Jun 09	79.03	69.55	126.52	72.17	89.04	112.22	91.42
Sep 09	77.70	76.33	122.77	72.11	90.21	109.25	91.39
Dec 09	76.45	75.94	135.83	77.68	88.86	113.66	94.74
Mar 10	74.41	87.13	120.21	84.34	86.20	105.16	92.91
Jun 10	74.05	76.05	111.06	86.20	87.36	108.34	90.51
Sep 10	71.62	89.97	130.81	81.18	76.94	109.35	93.31
Dec 10	71.25	79.46	110.78	84.18	76.62	95.35	86.27
Mar 11	70.49	83.19	123.27	74.69	69.45	93.32	85.74
Jun 11	65.30	66.72	115.54	73.65	52.35	102.93	79.41

Source: Bank of Albania, FSD's estimates.

## ANNEX 2: FINANCIAL SOUNDNESS INDICATORS OF THE BANKING SECTOR

Table 25 Banking sector

(%)	December `08	December `09	June `10	December `10	June `11
<b>CAPITAL BASED INDICATORS</b>					
Regulatory capital to risk-weighted assets	17.2	16.2	16.2	15.4	14.6
Core capital to risk-weighted assets	16.3	15.3	15.4	14.5	13.5
Core capital to total assets	7.8	8.7	8.9	8.6	8.0
Regulatory capital to total assets	8.3	9.2	9.3	9.1	8.7
Shareholders' equity to total assets	8.6	9.6	9.6	9.4	8.6
<b>NET NON-PERFORMING LOANS TO CAPITAL</b>					
Net non-performing loans to core capital	23.0	29.9	32.8	38.1	51.3
Net non-performing loans to regulatory capital	21.7	28.2	31.2	35.9	47.4
Net non-performing loans to shareholders' equity	21.1	27.1	30.3	34.8	47.6
<b>GROSS NON-PERFORMING LOANS TO TOTAL LOANS</b>					
RETURN ON EQUITY, ROE (annual basis)	11.4	4.6	8.3	7.6	2.4
RETURN ON ASSETS, ROA (annual basis)	0.9	0.4	0.8	0.7	0.2
<b>INDICATORS OF INCOME AND EXPENDITURE</b>					
Interest margin to gross income	106.5	119.6	116.2	118.9	146.6
Non-interest expenditure to gross income	81.4	231.4	213.1	227.5	289.7
<b>LIQUIDITY</b>					
Liquid assets to total assets	42.8	27.6	27.9	25.9	25.5
Liquid assets to short-term liabilities (up to 1 year)	64.9	32.6	32.8	30.6	30.2
Deposit/Loan Ratio	162.6	154.3	158.2	166.4	163.7
<b>NET OPEN FOREIGN CURRENCY POSITION TO CAPITAL</b>					
Net open foreign currency position to core capital	4.5	4.1	7.6	5.3	4.0
Net open foreign currency position to regulatory capital	4.3	3.9	7.3	5.0	3.7
Net open foreign currency position to shareholders' equity	4.0	4.3	8.1	5.4	4.1