

## Attachment 12

# Bank of Japan Monetary Intermediation Cost to the Japanese Economy

## Direct Issuance and First Use (Seigniorage) Money Supply Intermediation to the Japanese People (Estimated)

M1<sup>1</sup> Money Stock Basis Assumed**Initial Conditions**

Initial conditions would be to take GDP of economy in base year and divide it by itself and call the result 100 and the same for the money stock, take the chosen money stock indicator and divide it by itself and call it 100. Then, one possible way to allocate the productivity increase of the economy back to the economy itself in the most direct, efficient and least costly way would be for any increases in the money stock to be directly issued by the government as interest/Labor Dividend pro rata to the accounts held at the new 100% cash depositories. If the economy grows at a 2% rate then 2% seigniorage interest would be credited to the demand deposit accounts. In recessionary cycles, if any, no interest/Labor Dividend would be paid. In that sense these 100% reserve checking accounts would appear to earn interest/Labor Dividends and be the same as today's fractional reserve checking accounts that are paying effectively no interest in recessionary periods and some interest in expansionary periods. There would be no need for deposit insurance because the depository would have 100% cash and demand deposits - it would not be possible for such a depository to not have 100% funds on hand to cover any withdrawal situation including up to 100%. Commercial Banks would no longer take demand deposits but could take CDs and make time matched funding loans and lend their own capital and continue to offer other financial services without government insurance.

**Formula** If economy declines, no Labor Dividend until fully recovered to avoid inflation.

$$\begin{aligned} \text{[% Change MS}_N] &= \frac{MS_N - MS_{N-1}}{MS_{N-1}} = \frac{\text{Money Stock}_N \times \text{GDP}_N}{\text{Money Stock}_{N-1} \times \text{GDP}_0} - 1 \\ \text{[Labor Dividend (LD)]} &= \text{Seigniorage} \end{aligned}$$

Provided [GDP<sub>N</sub>] greater than any previous [GDP<sub>X</sub>] in the series 0 to N-1, if not then [% Change MS<sub>N</sub>] = 0%

**Where**

MS = Money Stock/Supply  
 GDP = Gross Domestic Product, measure of economic performance  
 N = Year, (period between measurements used)  
 LD = Labor Dividend [Seigniorage/interest]

**Economic (GDP) Performance**

Year	Year/Period (N)										
	0	1	2	3	4	5	6	7	8	9	10
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
GDP <sup>2</sup> (End of Year ¥ Billions)	¥497,720.0	¥491,312.0	¥490,294.0	¥498,328.0	¥501,734.0	¥507,365.0	¥515,520.0	¥504,378.0	¥470,937.0	¥479,172.0	¥469,545.0
Economy GDP (Begin GDP <sub>N-1</sub> )		100.000	98.713	98.508	100.122	100.806	101.938	103.576	101.338	94.619	96.273
Economy GDP (End GDP <sub>N</sub> /GDP <sub>0</sub> )	100.000	98.713	98.508	100.122	100.806	101.938	103.576	101.338	94.619	96.273	94.339
% GDP Change (GDP <sub>N</sub> /GDP <sub>N-1</sub> - 1)		-1.287%	-0.207%	1.639%	0.683%	1.122%	1.607%	-2.161%	-6.630%	1.749%	-2.009%
% Change Cumulative (GDP <sub>N</sub> /GDP <sub>0</sub> - 1)	0.000%	-1.287%	-1.492%	0.122%	0.806%	1.938%	3.576%	1.338%	-5.381%	-3.727%	-5.661%

**Money Stock Growth**

Year	Year/Period (N)										
	0	1	2	3	4	5	6	7	8	9	10
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Money Stock (Begin 1/1)		100.000	100.000	100.000	100.122	100.806	101.938	103.576	103.576	103.576	103.576
% Change (Period N from GDP% N-1)		-1.287%	-0.207%	1.639%	0.683%	1.122%	1.607%	-2.161%	-6.630%	1.749%	-2.009%
% Change Cumulative (Σ MS from 0)		-1.287%	-1.492%	0.122%	0.806%	1.938%	3.576%	1.338%	-5.381%	-3.727%	-5.661%
Labor Dividend (Year N) <sup>3</sup>		0.000%	0.000%	0.122%	0.683%	1.122%	1.607%	0.000%	0.000%	0.000%	0.000%
Money Stock (End)	100.000	100.000	100.000	100.122	100.806	101.938	103.576	103.576	103.576	103.576	103.576
Labor Div Cumulative (MS <sub>N</sub> /MS <sub>0</sub> - 1)	0.000%	0.000%	0.000%	0.122%	0.806%	1.938%	3.576%	3.576%	3.576%	3.576%	3.576%
Money Stock (LD Model) (Begin)		\$274,829.7	\$274,829.7	\$274,829.7	\$275,165.4	\$277,046.1	\$280,155.5	\$284,658.5	\$284,658.5	\$284,658.5	\$284,658.5
Labor Dividend (Year/Period N)		\$0.0	\$0.0	\$335.7	\$1,880.7	\$3,109.3	\$4,503.0	\$0.0	\$0.0	\$0.0	\$0.0
Money Stock (LD Model) (End)	\$274,829.7	\$274,829.7	\$274,829.7	\$275,165.4	\$277,046.1	\$280,155.5	\$284,658.5	\$284,658.5	\$284,658.5	\$284,658.5	\$284,658.5
Money Stock (M1 Actual)	¥274,829.7	¥342,348.0	¥444,850.6	¥464,476.9	¥487,020.7	¥480,108.9	¥492,570.2	¥487,895.8	¥492,680.4	¥508,212.8	¥528,100.0
Variance (with LD Model)	Over / (Under)	24.6%	61.9%	68.8%	75.8%	71.4%	73.0%	71.4%	73.1%	78.5%	85.5%

Money Stock (LD Model)/GDP Ratio	100.0%	101.3%	101.5%	100.0%	100.0%	100.0%	100.0%	102.2%	109.5%	107.6%	109.8%
Variance	0.0%	1.3%	1.5%	0.0%	0.0%	0.0%	0.0%	2.2%	9.5%	7.6%	9.8%

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**Notes/Sources**

1-M1 Money Stock data (Not Seasonally Adjusted) from Federal Reserve Bank of St. Louis at <http://research.stlouisfed.org/fred2/series/MYAGM1JPM189N/downloaddata?cid=32281>  
 3-GDP data from "What Was the Japan GDP or CPI Then?" MeasuringWorth at <http://www.measuringworth.com/datasets/japandata/>

3-Also known as Seigniorage. It is percent (%) increase in money stock for period N, provided the economy has total net positive growth above all previously paid Labor Dividends. Seigniorage money supply expansions would be paid like interest, direct deposited into depository account holders accounts on a pro rata basis.