

## Attachment 9

# Bank of Japan Monetary Intermediation Cost

## Monetary Intermediation Cost Impact on Economy and Jobs

## Assumptions

a-BOJ Reserve Requirement (From Attachment 1)	1.30%
b-Bank Note Rate Est.(Risk Free Rate( $r_f$ ) [Not less than zero] + Risk Premium est. at 25bp)	0.25%
c-Economic Growth Rate (Est.) for Cap Rate	4.00%
d-Capital Value per Job (Est. \$1.0M US Equivalent)	¥111,434,385
Exchange Rate \$1 U.S. Dollar to Yen <sup>7</sup>	3/31/2017 ¥111.43
New York Times 7/6/2009 Estimated Job Creation Cost (\$)	\$31,169
8-New York Times 7/6/2009 article \$31,169 job creation cost converted to Yen (¥)	¥3,473,298

### Step 1. Estimate Monetary Intermediation Cost

I. Historical Average (2007-2016, 10-years)	
	(¥ Billions)
1. BOJ Operations (Ave Last 10 Years (2007-2016)) <sup>1</sup>	¥509.2
2. New Money (M1) Issued times ( 1 - reserve requirement) <sup>1,a</sup>	¥17,433.6
Total Annual Intermediation	¥17,942.8
Intermediation Capitalized <sup>2,c</sup>	¥448,569.1

II. Fiscal 2016 Actual	
	(¥ Billions)
1. BOJ Operations (Fiscal 2016 Actual Net) <sup>1</sup>	¥497.3
2. New Money (M1) Issued times ( 1 - reserve requirement) <sup>1,a</sup>	¥42,792.7
Total Annual Intermediation	¥43,289.9
Intermediation Capitalized <sup>2,c</sup>	¥1,082,248.6

III. Monetary Debt Impact <sup>1,2,3 Notes</sup>	
	(¥ Billions)
Bank & BOJ notes to Gov't to cover fractional reserve deposit cash shortage <sup>3,b</sup>	¥593,642.0
Commercial Bank Federal Gov.t Securities Holdings Retired <sup>3</sup>	¥79,991.7
Bank of Japan Gov't Securities Holdings Retired <sup>3</sup>	¥417,711.5
Intermediation Capitalized	¥1,091,345.2

### Step 2. Estimate Monetary Intermediation Cost Impact on Japanese Economy and Jobs

There is no economic reward for monetary leverage from M&M Theorem (Corollary, risk free rate ( $r_f$ ) should be GDP growth rate, not gov't debt rate.)

Japanese Economic Indicators (as of 3/31/2017)	
GDP Fiscal 2016 (¥ Billions) <sup>4</sup>	¥539,254.3
Total Central Government Debt (¥ Billions) <sup>5</sup>	¥1,071,559.5
Unemployment, 2017-3 [une_nb_m] <sup>6</sup>	1,880,000

Risk Free Rate ( $r_f$ ) for bank note, not less than 0%	
[GDP] - [Monetary Intermediation] (Net % GDP)	
1995 to 2016 ( 22 Years)	-4.04%
2007 to 2016 (10 Years)	-3.28%
2012 to 2016 (5 Years)	-3.77%
Last Year 2016	-7.03%
Source: Attachment 4	

### Bank of Japan Monetary Intermediation Cost Economic Impact Estimates

Estimation Basis	(A)		(B)		(C)		(D)		(E)		(F)		(G)		(H)	
	Intermediation Cost		Jobs Impact Estimates		Unemployment		GDP %		Federal Debt		Reduction %		Improvement		Reduction %	
	Annual	Capitalized	Annual	Capitalized	Average											
I. Last 10 Ave ('07-'16)	¥17,942.8	¥448,569.1	5,165,915	4,025,410	4,595,663											
II. Fiscal 2016 Actual	¥43,289.9	¥1,082,248.6	12,463,642	9,711,981	11,087,811											
III. Monetary Debt Est.	¥43,653.8	¥1,091,345.2	12,568,401	9,793,613	11,181,007											
<b>Averages</b>	<b>¥34,962.2</b>	<b>¥874,054.3</b>	<b>10,065,986</b>	<b>7,843,668</b>	<b>8,954,827</b>											

The BOJ fractional reserve monetary system has an average 98.7% (1 - RR) intermediation cost (wealth transfer effect) of new money creation. This is a loss of capital from the other sectors of the economy to the banking sector. Assuming ¥80,000,000 Yen of capital value per job creation, the average ¥549.7 trillion capitalized cost represents an estimated 6,871,000 private sector jobs. Per NY Times estimate the ¥22.0 trillion annual cost would be approximately 8,512,000 jobs. These estimates indicate the approximate cost of monetary intermediation is on the order of 7.7 million jobs.

## Notes

- 1-Japanese government debt holdings by commercial banks expected to be credited and retired for use in funding full reserve deposits.
- 2-Bank debt to Japanese government estimated to be first lien at the same interest rate for all banks based on the risk free rate ( $r_f$ ) for Japan, but not less than zero + a risk premium estimated at 25 basis points (0.25%).
- 3-Ignores potential interest rate manipulation intermediation costs.

## Sources

- 1-BOJ Operations and M1 increases from Attachment 4 BOJ Annual Monetary Intermediation Cost 1995 to 2016 using M1 Money Stock.
- 2-Intermediation Capitalized = [Annual Intermediation] ÷ [Economic Growth est. for Cap Rate (c)]
- 3-Bank Note amounts from Attachment 6(a) Japanese Commercial Banks Consolidated Conversion Estimate and Attachment 6(c) Bank of Japan (BOJ) Conversion Estimate.
- 3-GDP data from Cabinet Office, Government of Japan, Time Series Data, Annual Nominal, Fiscal Year GDP at [http://www.esri.cao.go.jp/en/sna/sokuhou/sokuhou\\_top.html](http://www.esri.cao.go.jp/en/sna/sokuhou/sokuhou_top.html)
- 5-Total Central Government debt from Attachment 7 Japanese Central Government Debt.
- 6-Unemployment data from European Commission eurostat, Harmonised unemployment by gender - total (teilm010) at [http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=une\\_nb\\_m&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=une_nb_m&lang=en)
- 7-Historical exchange rate for U.S. Dollar (\$) to Yen (¥) from x-rates.com at <http://www.x-rates.com/historical/>
- 8-New York Times 7-6-2009 article "The Costs of Entrepreneurial Job Creation" estimated at \$31,169 per job at <http://boss.blogs.nytimes.com/2009/07/06/how-much-does-it-cost-to-create-a-job-by-encouraging-entrepreneurship/>

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