Attachment 2(b)

Bank of Japan Monetary Intermediation Cost
Fractional Reserve Analysis with 100% Reserve Requirement (Example)

No Financial Intermediary Analysis

When no financial intermediary is involved, intermediation must be real direct asset lending. In this example, Manufacturer as Intermediary lends Farmer a tractor to use for ¥50,000. Farmer rents the tractor from Manufacturer and grows a crop which is sold. In this system ¥150,000 of wealth is created from crop sale split ¥100,000 to Farmer and ¥50,000 to Manufacturer for use of the tractor with financial intermediary not participating at ¥0.

I. No Financial Intermediary (Real Asset Tractor Lending)					
	Farmer	Manufacturer	Intermediary	Total	
Start (Cash)	¥25,000	¥25,000	¥50,000	¥100,000	Begin Cash
Tractor Rent	-¥50,000	¥50,000		¥0	
Sell Crop	¥150,000			¥150,000	
End (Cash)	¥125,000	¥75,000	¥50,000	¥250,000	End Cash
Direct Net Earnings	¥100,000	¥50,000	¥0	¥150,000	Earnings (¥)
% Earnings	66.67%	33.33%	0.00%	100.00%	Earnings (%)

II. With 100% Reserve Financial Intermediation Added (100% Real Backing)					
	Farmer	Manufacturer	Intermediary	Total	
Start (Cash)	¥25,000	¥25,000	¥50,000	¥100,000	Begin Cash
Direct Net Earnings(Above)	¥100,000	¥50,000	¥0	¥150,000	
Loan	¥50,000		¥50,000	¥50,000	
Loan Interest	-¥2,500		¥2,500	¥0	
Pay Back Loan	-¥50,000		¥50,000	¥0	
End (Cash)	¥122,500	¥75,000	¥52,500	¥250,000	End Cash
Net Earnings	¥97,500	¥50,000	¥2,500	¥150,000	Earnings (¥)
% Earnings	65.00%	33.33%	1.67%	100.00%	Earnings (%)
Wealth Transfer=(Principal+Interest) x (1- RR). Inflation is Principal portion wealth transfer				0.00%	**Inflation Cash (%)**
Inflation Cash (¥) [Principal Wealth Transfer] = Total Cash (¥) End - Total Cash (¥) Begin				¥0	**Inflation Cash (¥)**

100% Fractional Reserve Requirement Financial Intermediation/Wealth Transfer Impact						
		(A)=(a) x (1-RR)	(B)= Item x (1-RR)	= (1 - RR)	(C)=Item x RR	(D) = (B) + (C)
Item	**Item $ Amount**	**Inflation**	**¥ Unearned**	**% Unearned**	**¥ Earned**	**Total Return**
Loan Principal (a)	¥50,000	¥0	¥0	0.00%		¥0
Interest (Loan(a) x (c))	¥2,500		¥0	0.00%	¥2,500	¥2,500
Total	¥52,500	¥0	¥0	0.00%	¥2,500	¥2,500
Wealth Transfer (Unearned Return = ∑(B))						¥0
Financial Intermediation Unearned Return % (Unearned Return/Total Return = ∑(B)/∑(D))						0.00%
Intermediary Return on ¥50000 Required Reserve Investment (Total Return/Start Cash)						5.00%
Earned Financial Intermediation (Interest x Reserve Requirement = ∑(C))						¥2,500
Earned Financial Intermediation % of Total Return of ¥2500 (Earned Return/Total Return)						100.00%

100% Fractional Reserve Financial Intermediation Analysis

In this 100% fractional reserve system the Financial Intermediary adds a ¥50,000 loan into the system 100% backed by real financial assets (intermediary start cash), increasing fractional reserve returns by ¥0 to the same ¥150,000 from the sale of the exact same crop now split ¥97,500 to Farmer, ¥50,000 to Manufacturer and ¥2,500 to the intermediary that added 100% real credit. Farmer pays back a ¥50,000 loan and pays interest of ¥2,500 for 100% (¥50,000) of true credit intermediation. In the real world Farmer might take this type of loan to maintain some liquidity during the growing period before crop harvest. The Financial Intermediary loan captures 1.67% of the system earnings in the form of interest with no unearned transfer of wealth in the form of fractional reserve lending inflation since the same crop is produced with no cash added to the system.

Fractional Reserve Intermediation Analysis

In this system Wealth Transfer is (Loan Principal + Interest) x (1-Reserve Requirement)). Inflation is Principal portion of wealth transfer. In a 0% reserve system 100% of the loan repayment results in inflation with interest payments as direct wealth transfer without added inflation. In a 100% reserve system there is no inflationary wealth transfer and 100% of the interest earned is true credit intermediation.

Assumptions	
Initial System Cash	¥100,000
Tractor Rent $	¥50,000
Crop Sale Price	¥150,000
(a)-Loan Amount $	¥50,000
(b)-Reserve Requirement (RR)	100.00%
(c)-Interest Rate	5.00%