Economy Works Differently: Any Good Entrepreneur Drives Investment by Its Future Earnings Rather Than Its Spending, So Why Do Governments Drive by GDP (Consumption+ Investment Spending)?

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GDP, even net of obsolescence (NDP) has to be considered only as an expense (investment is an expense; consumption is an expense). As an entrepreneur you will never manage your investments by looking only the expenses; it is clear you will make decisions on gains. As a person, will you look at the expenses you make to acquire stocks or at the gains? Thus it must have been clear that you will never manage a country by costs, so why do governments use GDP (consumption plus investment spending) to drive their economy? Governments should manage gains: wealth created, which is the full result you get from all these expenses.

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INTRODUCTION

GDP, even net of obsolescence (NDP) has to be considered only as an expense (investment is an expense; consumption, export minus import, and change of stock, all these indicators are expenses). As an entrepreneur you will never manage your investments by looking only at the expenses; it is clear you will decide on gains. As a person, will you look at the expenses you make to acquire stocks or at the gains? Thus it must have been clear that you will never manage a country by costs, so why do governments use GDP (consumption plus investment spending) to drive their economy? Governments should manage gains: wealth created, which is the full result you get from all these expenses. The net gain from today's investment is the opportunity to invest, resulting from all future revenues received (salaries, taxes and free cash flow) minus this today's investment.

Drive by GDP is due to the classical way of macroeconomics. By managing one year (even several, but not all the future years), macroeconomics has made the same mistake since about 100 years, when Simon Kuznets and John Maynard Keynes made the GDP the key indicator of any economy.

We will show that each year, consumption plus the discounting sum of all revenues consumed resulting from the investment is no more than the wealth created, which is very different from the GDP.

In chapter1, we will explain the wealth creation mechanism using simplified figures for USA. In chapter 2 we give the wealth creation formulas per year: wealth created annually is very different from GDP (and NDP). In chapter 3, we conclude that the government will drive their country by using the level of Wealth of the Nation and the wealth created annually. In chapter 4 we provide real figures for 7

countries over 20 years and we applied a Leland approach to compute the optimum increase of Debt compared to the government wealth every year.

THE WEALTH CREATION MECHANISM

In this paper, we will generally use first capital letters for Stock and a first lowercase letter for a flow. (Wealth and Capital are Stocks; annual wealth created is a flow). We will use a prime mark when we use gross values (before obsolescence effects). In addition, in order to facilitate the understanding of the mechanisms of wealth creation, we will use approximate figures in the body of this text; the exact figures are presented in the appendix.

Like Keynes, we can say that production has two components: non-durable goods (c: consumption) and durable equipment (i': new machines called gross investment). In a closed economy, all that is produced is sold, thus equaling revenue (y'). Our example is presented in a closed economy, but the formulas are exact because we use revenue instead of GDP.

This equation is generally written as Keynes did it: y'= c+i'. In this formula, we can't say that the revenue y' is the result of the investment i'. All that is produced results from all the producing machines, the whole Capital. We can write it: y'=c+i'= a'*Capital, where -a'- is the (gross) revenue global factor. Thus y', c and i' are the consequences of the machines that produced them: the Capital.

For example, for the US, figures are about:

y'= $ 20 trillion
c= $ 15 trillion
i'= $ 5 trillion
Capital= $ 100 trillion

The revenue productivity factor - a'-is around 20 % for the USA.

If, like Friedman, you wanted to look at the long term, then you would probably think like him, that your level of Wealth corresponds to all your future incomes. One dollar of income expected in the future is the result of an activity subject to the vagaries of the market. This hoped-for, and therefore unsecured, dollar is worth less than a stumbling dollar, secure, in your pocket today; the difference between the two is called the discount rate (we note it wac). With a discount rate of 6 % for US, we obtain that one dollar of expected income in one year, therefore not certain, is exchanged for 0.94 dollar sure today; thus you have to divide any one-year future flow by 1.06 (1.06 * 1.06 for 2 years etc.), that is the definition of a discount rate of 6 %. How to determine this rate? It will be by analyzing the placements. It turns out that this rate must be equal to the expected rate of the placement concerned. Indeed, if you buy a one dollar share today and the market expects 1.06 dollar in a year, for consistency if you immediately sell your rights at one year, i.e. 1.06 dollar expected in a year, then you will sell them today for 1 dollar. So 1.06 dollar unsecure in a year is exchanged 1 dollar today. The discount rate is, therefore, also 6 % for the activity concerned, like the 6 % of its expected return. By studying all USA activities, we find today this average rate of expected return.

Friedman suggests defining Wealth by the discounted sum of all future income. And there he made a mistake: you have to withdraw each year the reinvestments made (change in Capital), because by acquiring them, you will recover other future incomes (for example for an investor his wealth is not the discounting sum of his future profits but of his future free cash-flow). Wealth can be seen as your expected living standard for the future.

If we include the Debt effects and their interests, we will find that net Wealth is the discounted sum of all your future consumptions (this explains the framework of the Lucas 'utility function).

Let's investigate how wealth creation works. If you have 300 dollars invested at 6 %, and you consume 18 dollars every year then your "income will be permanent", constant, of 18 dollars per year, because the Wealth will remain unchanged of 300 dollars every year. For doing this, you need at the same time that your Capital which produces annual created wealth, income, and consumption, remains unchanged and therefore, in the case of the US that, you invest 6 % of this Capital, as much as the obsolescence of 6 %. This amounts to replacing the power of machines those ages or disappear, with the

equivalent in new machines (6%). With this investment, you can therefore exchange your 300 dollars of Wealth for 18 dollars of permanent annuity. In other words, the exchange Value of 18 dollars permanent annually and insecure, at the discount rate of 6%, is 300 dollars (18/6%= 300). Certainly, at this given moment, there is indeed a "mathematical equivalence" of this wealth created expected with this constant permanent income. In fact, in time, things will happen in a very different way, because you want to invest more than the obsolescence in order to grow.

If you consume only 5% of the Wealth and thus reinvest 1% more, you renounce to today consumption, in order to get growth next year. Your part of current wealth distributed is this time really equal economically to the "returns or pay-back " you will have, i.e. 15 dollars the first year (18-3), which are now growing at the rate of + 1% per year; thus Wealth (300 dollars) and wealth created (18 dollars) will grow each year by 1% and really reflect the evolution of the economy, not the static one-year view, called "permanent income" by Friedman, which would cause you to consume all annual created wealth. The first mathematical equality gives you the rate of return of 6%, that is to say a created wealth of 18 dollars (the flow) that is not different in the 2 cases. If you consume 5% of your Wealth (the Stock), i.e., 15 dollars, your Wealth will increase by the remaining 3 dollars and ultimately drop from 300 dollars to 303 dollars, etc. per year, leading to a growth of 1%. Your income will grow by 1%; fortunately, growth exists. That is the way growth works.

Suppose that, like the USA, you invest 5% of the capital every year, with an obsolescence of 4 %, thus all things being proportional at equilibrium, your Capital will increase in one year by 1%.

Note: Here the Capital considered is what we call the economic Capital. The economic Capital as a proxy for the Capital in historical cost; the only difference could be due to an imperfect estimation of obsolescence (depreciation and amortization). Obsolescence is the investment amount you need to make the Enterprise Value constant, thus the economic Capital. See Economy works differently in episode 3 (SSRN), to get a solution to the 2 Cambridge controversy.

HOW DOES WEALTH CREATION WORK?

We can therefore estimate how rich USA is. Its consumption being of 15,000 billion dollars, it is also, given our presentation, equal to 6% minus 1%, that is to say, 5% of the Wealth of the USA. Wealth is, therefore $ 300 trillion (we can check that 300x 5% = 15 that is consumption).

This is equivalent to the Gordon-Shapiro formula by extending fcf to all revenues consumed (salaries, taxes, fcf).

The discounted sum of all income minus reinvestments is, therefore, $ 300 trillion. This therefore represents the discounted sum of all future income minus the reinvestments that will make them grow, or again closed from the discounted sum of all your future consumption. It may sound like a lot, but at the end it is only "the equivalent" of 20 years of consumption.

If we now analyze the annual production, this consumption of $ 15 trillion also represents 15% of the 100 trillion dollars of Capital. Consumption, therefore, allows the link between Wealth and Capital: c=15% *Capital= 5% Wealth. Here Capital is economic Capital, and its proxy is the Capital in historical cost (the only difference can come from a bad estimation of obsolescence).

By discounting the sum with an expected growth rate g, we get a kind of extended Gordon Shapiro formula, and extended Q of Tobin formula:

Wealth = ((a-g)/(discount_rate-g)) * Capital, where a and g (Precisely g is the net rate of change of the Capital (after taking into account the obsolescence) are net ratios.

Thus, USA Wealth is today worth about 3 times the Capital (15% / 5%). Let us call this ratio of 3 between Wealth and Capital, the Valorisator, thus for any country at any time: Wealth= Valorisator * Capital (all these indicators depend on time, on Nations and activities, evolve, keeping this relation: the Valorisator was closed from 6 for the USA 20 years ago). The Valorisator is a kind of generalization of Tobin's Q for all revenues.

It demonstrates a cause-consequence ratio between all current Capital and all future incomes minus future reinvestments from these incomes. This should not surprise anyone. Income is split down into

salaries (labor) and capital income (dividends and interest on debt for financial investments, rents less charges for real estate). The valuation of companies already gives us the ratio between the discounted sum of dividends and interest on debt, which is called Enterprise Value, and Capital, which is of the order of 1; indeed, any investor who invests one dollar of Capital in a company must see the value of the company at least equal to 1. Knowing that consumption is 3 times the distributed Capital income, both will grow at the same rate; ratio 3 is established for their discounted sums (between consumption of capital income and consumption of labor income) and, therefore between Wealth and Capital. This ratio has nothing to do with the Keynes multiplier which is around 4 for the USA (income on investment) and would have covered one year return which was not possible, where the Valorisator is 3 and relates to the whole future (by discounting the future we get an immediate equivalent exchange Value).

As a consequence of the ratio between Wealth and Capital, at equilibrium, the change in Wealth will also be proportional to the change in Capital, called investment, in the same ratio of 3 for USA and France. The investment has a central effect, contrary to what Friedman asserted, and not on the variation in income for the year as seen from Keynes (multiplier), but on the set of variations of all future incomes minus the associated variations of reinvestments.

From the formula:

$$Wealth = ((a-g)/(discount\_rate-g)) * Capital \quad (1)$$

where a is the net revenue factor and g the net_investment, we get at equilibrium: (discount_rate-g)*Wealth = (a-g) *Capital.

Thus for the net wealth created we get:

wealth_created= discount_rate*Wealth =net_revenue - g *Capital+g*Wealth
wealth_created = net_revenue+ (Valorisator-1) g*Capital
wealth_created = net_revenue+ (Valorisator-1) *net_investment
wealth_created= y'+ (Valorisator-1)*investment'-Valorisator * obsolescence
(= consumption+ Valorisator* investment'-Valorisator* Capital obsolescence)

Note: At equilibrium, it is possible to give a direct demonstration. Because Wealth is the discounted sum of all revenues minus reinvestment, the wealth created is the consumption and the Stocked parts. The Stocked part is the increase of Wealth. As a consequence of the Wealth definition, the increase of Wealth is the discounted sum of the increase in revenue minus increase in reinvestment.

In trillion (T) for USA, we get the difference between net wealth created and net domestic production:
wealth_created=20+2*5-3 *4=$ 18 T (you can check, it is also 6%*300).

You can't do a lot against obsolescence.

This net wealth created must be compare to net domestic production = 20 -4=$ 16 T

For the gross indicators the difference is very higher:

gdp= gross_revenue=y'= $20 T must be compare to right criteria of decision
gross wealth_created = y'+(Valorisator-1) * investment' = 20+2*5 =30 = 15+15, where investment effects equals the consumption effects, that is totally different from GDP

At equilibrium, one trillion more invested must be counted for 3 for making a decision not for1 as in GDP.

The Valorisator allows us to invest for a Nation, including the debt effects (by the change of wac).

The wealth created includes future salaries, profits and taxes; as we will see the Valorisator is different for each country and is closed today from 3 for USA (1 for the investors in a perfect market plus 2 for salaries and taxes).

If there is a change of equilibrium we will simply add the change of equilibrium effect:

$$delta(Valorisator)/Valorisator * Wealth0 \quad (2)$$

In a real world, there is no guarantee of equilibrium, and of course it is positive to invest only if your investments create sufficient income, if they do not create anything or less than their amount, wealth

created is net losses. In addition, for the investors the Valorisator is reduce to the microeconomic Q of Tobin: (roc-g)/(wac-g); the first condition to invest (for investors) remains roc greater than wac. So the question is how to maximize Wealth under the investor condition of profitability.

If the government needs to borrow to invest, the wac will increase, depending of the amount.

CONCLUSION: WHAT DOES A GOVERNMENT HAVE TO DRIVE ANNUALLY?

Let's look at how the flow of wealth created over one year for the USA is used. With a rate of 6%, the wealth created is, therefore 6% * 300,000 = or 18,000 billion dollars. From these 18,000 billion dollars, 15,000billion dollars are consumed. In addition, USA invests 5,000 billion dollars in investments, creating 3 times more, ie, $15,000 billion, while obsolescence eliminates 3 * 4,000, almost whatever we do. In summary, the annual added wealth is used as follows: 18,000= 15,000 + 3*5,000 – 3*4,000.

After consumption, Wealth will increase from 18,000-15,000 that leads to 3,000 billion which is indeed 1% growth (initial Wealth is $300,000 billion), or 3 times the net investment which is $1,000 billion (note: 5,000-4,000). We will therefore get in the future, every year, 1% more income and investment.

On average, the investments weigh $15,000 billion of created wealth while the GDP only counts them for $5,000 billion. The GDP measures the expenditure for the year, where you have to steer all future wealth creation. Our Governments are therefore in total error in piloting the GDP, even over 3 years. Gross production is 20,000 billion dollars (15,000 consumption + 5,000 investments) while the gross wealth created over one year is 30,000 billion dollars: 15,000 consumption + 15,000 investment valorization. ("to valorizate" is to discount all future revenues minus future reinvestments (including 0 return investment variation, that is, increase in liquidity (+ decrease in liquidity), the two due to this investment, including the reinvestments)

To make a choice is to compare what you gain against what it costs. An investment will last and produce several years. The investment must therefore be compared to its discounted future revenues. Who will continue to drive spending where it is necessary to drive future revenues? Jobs, investments, debt, the economy works differently; it has to be managed differently. Here is the tool to manage what some call the Capital of stakeholders; without this new framework impossible to put the economy at the service of all (with that new approach, we can even start to promote ecology, sustainability, work at home ...). It should be obvious that in order to manage the economy of a country, we have to discount income from labor as income from Capital; in the past, economics has taken a wrong turn, let's start over again, remembering that money can be a good servant, but not our master.

The maximum Debt level would deserve an episode on its own. At this point, let's just say that no bank would consider only a year's income in determining your possible loan amount to buy a house, for example. The bank must consider all future changes in your income and, therefore, your Wealth. To determine a borrowing level, does a permanent contract with constant income worth the same as a fixed-term contract and the same as a permanent contract whose salary increases by 1%? Likewise, for a State, the answer is clear, Debt to GDP is, therefore, a ratio besides the subject; what counts is the Debt to Wealth ratio. If your income is 40,000 dollars and your debt-to-income ratio for the year exceeds 100% to buy your house and even if your loan is 150,000 dollars, is that a problem? You have 25 years to pay it off. If the Debt to Income (gdp) ratio exceeds 100% is it a problem? Debt divided by 25 years of income is only 4%. Even if we only take State revenues, it will be 8%. With a Wealth approach, traditional finance methods make it possible to answer the Debt amount question. Thus for the USA with 300,000 billion dollars in Wealth, or nearly 100,000 for the Government, $25 trillion in Debt, it is significant but not insurmountable. Thus with a model of the Leland type, based on country competitiveness, we find that if we invest correctly, we can increase the Debt immediately by another 800 billion of optimized investment. This is quite logical, a good investment is creating in average three times its value at the beginning (the ratio decreases with the amount); during this time by increasing the Debt, the risk of not being able to repay the interest surely increases (costs of bankruptcy increases exponentially). This results in an increasing discount rate and as a consequence the decreasing of the Wealth. Expected gains and

losses intersect at the maximum borrowed investment rate related to what that investment will produce. We must analyze neither averages nor marginal rates (even corrected for adjustment costs) but differential variations.

Another simple reason could be made. If the USA wac is 6% and a Bank would like a 2 % wac, the maximum Debt should be a third of the Government Wealth, that is about $33,000 billion. (For example, a constant annual revenue of 60$ discounted at 6% worth 60/6%= 1000$ exactly as a constant revenue of a third of 60 $ that is 20$ discounted at 2%: 20/2%= 1000$).

These limits could be increased if you consider the dollars of Wealth outside of the USA. The Barro limit about the Barro-Ricardo equivalence (Debt has no effect on revenue over a long period) is that he never considers investments and their results (Valorisator * investment). His equations (it is very simple to check in "Are government Bonds net wealth", 1974) could be summarized by a Debt equation, where Debt is Bound (B) with a borrowing rate of r ; he finally writes: B(1+r) –rB – B=0 (even if he uses Overlapping Generations). By this way he does not take into account that if B is invested, B will create Valorisator* B = delta Wealth (from 3 to 6 times B if B is small) for the Nation (including taxes for Government). As B increases, its Valorisator decreases and bankruptcy costs increase by an increase of the discount rate, which decreases wealth creation. Thus there is an optimum Debt depending on the projects selected. Thus, Barro would have needed one generation step more to introduce the Valorisator effects on investments. The realistic figures are computed in the appendix depending on the activities selected (scenarios leads to Valorisator and change of Valorisator) demonstrating the utility to invest even by borrowing no more than the optimum.

Every morning when we wake up we can look at the planets, they are round, and they turn, so let's no longer listen to those who tell us that the earth is flat, and let's reason.

REAL COMPUTED FIGURES

To compute all figures, we use for each country all accounts of Eurostat Data (and OCDE when needed) plus financial results of the non-financial enterprise and their Debt and Stock (example SP500 for USA), plus banks publications (China, Russia). We use capillarity to compute all the figures: first we use stock results and financial results of main companies; we generalize results to the non-financial enterprise sector, including revenues and taxes. Secondly, we compute discounted sums using all accounts for the financial sector. Thirdly we compute the government and institutions sector. At least we compute the Household sector. All flows of all accounts are discounted. (Note we compute the Rest of the world by assuming the wac is similar to the country).

TABLE 1
GOSS WEALTH = GROSS VALORISATOR * CAPITAL

$ Billion	Year	1996	1999	2002	2005	2008	2011	2012	2013	2014	2015
USA	Capital	45,866	54,370	66,545	88,869	95,799	101,782	106,545	112,309	116,927	121,138
USA	*Gross Valorisator*	5.32	4.96	4.54	3.96	3.50	2.88	2.71	2.77	2.77	2.59
USA	Gross Wealth	244,183	269,890	301,944	351,804	335,291	293,026	288,936	311,588	324,061	314,101
China	Capital	4,313	5,434	6,899	10,189	17,026	28,538	32,516	36,296	39,495	42,203
China	*Gross Valorisator*	2.81	1.47	1.53	1.80	4.43	5.71	5.56	5.92	6.27	6.18
Chine	Gross Wealth	12,121	7,975	10,524	18,371	75,496	162,884	180,661	214,832	247,441	260,697
Japan	Capital	35,818	35,571	31,840	37,137	40,231	51,136	50,837	41,979	39,713	35,055
Japan	*Gross Valorisator*	5.10	4.77	3.59	4.28	3.06	3.42	3.63	3.88	3.80	3.44
Japan	Gross Wealth	182,775	169,515	114,426	158,811	122,925	174,805	184,336	163,060	150,911	120,415
France	Capital	7,412	6,963	7,564	13,667	18,141	19,286	17,916	18,550	18,524	15,815
France	*Gross Valorisator*	3.77	5.33	4.30	4.06	3.48	3.69	3.78	3.81	3.75	3.70
France	Gross Wealth	27,909	37,146	32,510	55,436	63,174	71,248	67,792	70,586	69,447	58,595
UK	Capital	7,106	6,882	6,954	10,500	13,287	13,106	12,538	12,961	13,410	11,788
UK	*Gross Valorisator*	3.30	5.13	4.68	4.86	5.32	3.73	4.17	3.65	5.04	4.62
UK	Gross Wealth	23,443	35,309	32,562	51,019	70,749	48,899	52,346	47,268	67,606	54,485
Germany	Capital	9,733	9,426	9,048	13,589	17,807	19,168	18,626	20,174	21,079	18,427
Germany	*Gross Valorisator*	3.78	4.21	3.18	2.95	2.50	2.90	2.75	2.77	2.74	2.71
Germany	Gross Wealth	36,763	39,677	28,799	40,029	44,547	55,629	51,296	55,908	57,764	50,003
Russia	Capital	6,215	1,513	1,581	2,392	4,585	5,352	5,949	6,642	5,968	4,260
Russia	*Valorisator*	2.94	2.89	4.52	3.43	4.29	4.35	3.48	4.04	5.16	3.26
Russia	Gross Wealth	18,253	4,370	7,151	8,195	19,683	23,297	20,701	26,815	30,799	13,875
7 countries	Capital	116,464	120,158	130,431	176,344	206,876	238,369	244,928	248,912	255,115	248,686
7 countries	*Gross Valorisator*	4.68	4.69	4.05	3.88	3.54	3.48	3.45	3.58	3.72	3.51
7 countries	Gross Wealth	545,446	563,883	527,916	683,665	731,865	829,787	846,068	890,057	948,029	872,171

TABLE 2
NET WEALTH = GROSS WEALTH - DEBT VALUE

Net Wealth in $Billion	1996	1999	2002	2005	2008	2011	2012	2013	2014	2015
USA	232,976	257,629	286,400	330,454	309,224	262,315	256,985	279,098	290,469	282,831
China	11,679	7,334	9,700	16,897	72,592	156,300	172,577	205,029	236,395	249,260
Japan	175,557	161,234	106,090	148,292	111,723	158,368	167,612	149,305	137,917	108,636
France	26,346	35,689	31,015	52,926	59,661	67,090	63,634	66,223	64,786	54,589
UK	21,851	33,460	30,668	47,765	67,159	43,839	47,391	42,228	61,666	49,090
Germany	33,733	36,799	26,082	36,097	39,771	50,328	46,223	50,757	52,467	45,584
Russia	18,216	4,326	7,080	8,059	19,343	22,842	20,357	26,392	30,401	13,620
7 countries	520,359	536,470	497,034	640,488	679,474	761,081	774,779	819,031	874,100	803,610

TABLE 3
DISCOUNT RATES

Discount rate (net Wealth)	1996	2000	2005	2010	2015
USA	6.65%	9.34%	9.07%	8.94%	6.45%
China	6.80%	9.41%	11.76%	13.88%	5.85%
Japan	5.00%	3.87%	4.02%	3.90%	3.29%
France	7.89%	8.51%	6.45%	7.09%	5.06%
UK	10.08%	10.09%	10.35%	9.78%	6.41%
Germany	9.29%	10.00%	8.99%	8.99%	6.60%
Russia	33.16%	26.65%	24.92%	22.94%	22.80%

TABLE 4
INCREASING DEBT FOR NATIONS POSSIBILITIES USING A LELAND'S LIKE MODEL: THE REALISTIC COMPUTED FIGURES FOR 7 COUNTRIES (DEPENDING ON ACTIVITIES SELECTED

similar to Leland Approach with a DCF complementary approach in order to provide parameters

*** USA as worlwide dollar issuance unit , thus including in dollarWealth effect leads to about 2.5 borrowing possibilities and Wealth compared to USA production (American people)**

Billion Dollars			**USA production ***	**China**	**Japan**	**UK**	**France**	**Germany**	**Russia**
Gross Wealth	Country	RB p	**314,101**	**260,697**	**120,415**	**54,485**	**58,595**	**50,003**	**13,875**
Debt Value	Country	VD p	31,271	11,437	11,779	5,395	4,006	4,419	255
Net Wealth	Country	RN p	**282,831**	**249,260**	**108,636**	**49,090**	**54,589**	**45,584**	**13,620**
Capital	Country	K p	121,138	42,203	**35,055**	**11,788**	**15,815**	**18,427**	**4,260**
gross Valorisator	Country	ValB p	2.59	6.18	3.44	4.62	3.70	2.71	3.26
g rate of growth									
Gross Wealth	G & I	RB g	**92,558**	**48,108**	**58,503**	**18,222**	**27,512**	**16,365**	**7,098**
Net Wealth	G & I	RN g	**75,377**	**39,690**	**49,449**	**15,259**	**24,876**	**13,746**	**7,060**
Debt Value	G & I	VD g	17,181	8,418	9,054	2,962	2,636	2,619	38

Preferred Scenario :		including activities selection	**USA production***	**China**	**Japan**	**UK**	**France**	**Germany**	**Russia**
1.0State borrowing invt max private Wealth	G & I	**delta D optimum**	**428**	**219**	**347**	**415**	**391**	**376**	**8.9**
bankruptcy cost on Debt Value VD	G & I	net banruptcy cost	**78**	**148**	**61**	113	**171**	47	11
Bankruptcy cost on VS		**= VE0-VD0+delta D- VS**	**73**	**127**	**13**	**-22**	**49**	**10**	**166**
Bankruptcy cost on VE			**150**	**275**	**73**	**91**	**220**	57	177
Total cost for borrowing	G & I	debt increase + bankrupcy cots	**501**	**346**	**359**	**393**	**440**	**387**	**175**
			0	0	0	0	0	0	0
marginal valorisator for activities	G & I	depending on selectedactivities, scenario explored: acti	5.20	5.20	3.44	4.62	4.20	3.20	6.18
differential valorisator before bankruptcy cost		decrease effect due to inv increase: -(delta(inv)/K)2*:	3.90	3.84	2.88	3.53	3.33	2.58	5.97
delta Wealth before taking into account Bankruptcy cc	**Country**	delta R= Valorisator * investissement	**3,341**	**3,363**	**1,995**	**2,936**	2,599	**1,944**	**706**
Bankruptcy cost (son Leland VE)			150	275	73	91	220	57	177
delta Gross Wealth after taking into account banktrupcy cost			**3,191**	**3,088**	**1,922**	**2,845**	**2,379**	**1,887**	**529**
		check	1,670	841	998	1,468	1,300	972	53
tax rate in Gross Wealth effect (after bankrupcy cost)			**26.7%**	**15.9%**	**45.5%**	**31.1%**	**45.6%**	**30.2%**	**51.8%**
		check	850	492	875	884	1084	569	274
delta Weath taxes on its own	G & I	**taxes on Wealth after bankruptcy costs**	**425**	**123**	**437**	**442**	**542**	**284**	**27.4**
Capital ratio coming back to Government and Institutio	G & I	GI recovers its borrowing ratio	100%	100%	100%	100%	100%	100%	100%
Debt finance by money coming back to GI		**amount :**	**428**	**219**	**347**	**415**	**391**	**376**	**9**
Total return of investment for	G & I		**854**	**342**	**784**	**858**	**933**	**661**	**36**
									139
if privatecompanies participate to increase investment		% share provided by private companies	50%	75%	50%	50%	50%	50%	90%
		% share provided by GI	**50%**	**25%**	**50%**	**50%**	**50%**	**50%**	**10%**
		wealth created by private companies	**1,670**	**2,523**	**998**	**1,468**	**1,300**	**972**	**476**
		taxes coming back to GI	425	369	437	442	542	284	246.8
		Total money GI return	**1,279**	**711**	**1,222**	**1,300**	**1,475**	**945**	**283**
	G & I	**net gain**	778	365	**862**	**906**	**1035**	**559**	**108.3**
net gain for private company and people	Househo	**net gain for private company and people**	**1,634**	**1,996**	**427**	**1,220**	**733**	**622**	**342.9**
net gain for the Nation	Country	**net gain for the Nation**	2,412	2,361	**1,289**	**2,127**	**1,768.6**	**1,181**	**451.2**
net debt Valorisator	Country	net gain/ borrowed investissement	6.63	11.79	4.72	6.12	5.53	4.14	51.90
			817	1497	213	610	367	311	150
			3,191	3,088	1,922	2,845	2,379	1,887	529
	Country	bankruptcy costs (BC on E)	150	275	73	91	220	57	177
	Country	**delta Gross Wealth**	**3,191**	3,088	1,922	2,845	2,379	1,887	529
Billion Capital needed for 1 million jobs in average	Country		418	39	306	379	385	241	50
Billion Capital needed for 1 million jobs in the selected	Country		**320**	**62**	**366**	**496**	**429**	**253**	**27**
million of jobs created	Country		**2.7**	**14.1**	**1.9**	**1.7**	**1.8**	**3.0**	**3.2**
same Hypothesis on Activities selected for any countries based on investment:			195	195	195	195	195	195	195
40%USA (IT or innovative activities ….) 60% Chine (industry plants ….)			4.39	4.49	3.56	4.26	4.00	3.86	0.45

TABLE 5
OTHERS SCENARIOS

other interesting scenari	noet: Germany need to borrow China needs foreign investors	**USA production***	**China**	**Japan**	**UK**	**France**	**Germany**	**Russia**
1.1 scenario max debt (inv) for 0 net gain for GI	**Inv max with 0 net gains for the Government**	**815**	**373**	**838**	**855**	**810**	**841**	17
	G&I net gains	**0**	**0**	**0**	**0**	**0**	**0**	0
	private gains idem nation gains	-967	149	-1,465	**-1,633**	**-997**	**-1,505**	645
		USA production*	**China**	**Japan**	**UK**	**France**	**Germany**	**Russia**
1.2 inv max for maximising Nation Gains	inv max etat pour gain Nation max	**440**	**219**	**407**	**444**	**428**	**409**	**0.0**
delta net Wealth maximum for the Nation	Nation net Walth	2,414	2,361	1,339	**2,136**	**1,787.9**	**1,192**	**0.0**
delta net private Wealth	Private net Gains	1,632	1,996	406	**1,210**	**723**	**612**	**0.0**

TABLE 6
LELAND'LIKE MODEL PARAMETERS

Leland Model adaptation for a Nation and DCF parameters			USA production*	China	Japan	UK	France	Germany	Russia
Debt as a Capital	G & I	KD g	**17,085**	**8,376**	**9,021**	**2,953**	**2,643**	**2,615**	**38**
Max Releasable Ressource (10% competivity cost)	G & I	VE g= 10% * RN p ; VE Leland	28,283	24,926	10,864	4,909	5,459	4,558	1,362
Net Wealth	G & I	check	75,377	39,690	49,449	15,259	24,876	13,746	7,060
wac VD g		MuD	1.46%	3.27%	0.68%	2.17%	2.06%	1.32%	3.40%
wac RB g		MuE	4.60%	5.14%	2.79%	5.29%	3.63%	4.08%	5.59%
têta D without inflation		**debt premium :MuD-Rf-i**	0.56%	0.50%	0.37%	0.33%	0.28%	0.17%	0.39%
rf		risk free	**0.90%**	2.77%	0.31%	1.84%	1.78%	1.15%	3.01%
V Bankruptcy/ R Max free	G & I	Mud(1+MuE-teta)/(MuE-Teta)(1+rf)(1-Teta)	0.37	0.72	0.29	0.45	0.63	0.35	0.67
Resource leading to total Bankruptcy	G & I	min value for VE g	10,589	17,942	3,124	2,219	3,420	1,583	913
V0 g (from VE g for Debt)	G & I	MuE RB/(MuE-teta)*(1-teta)	32,381	27,748	12,561	5,253	5,932	4,764	1,470
Debt Value without CentralBank intervention	G & I	(rD*K D/rf) *(1-(V0/VB))puiss -X))	**18,328**	**8,376**	**8,758**	**2,773**	**2,560**	**2,632**	**35**
parameters		**Leland Model**							
rD	G & I	rD	1.45%	3.25%	0.68%	2.16%	3.87%	2.40%	7.40%
cD	G & I	cD= rD * KD	248	272	61	64	69	68	0.7
decreasing power exponent	G & I	X= -LN(1-RF *V D /cD)/LN(wacc R brute*(1+VD/c	0.97	1.06	0.47	1.85	3.29	1.91	3.71
	G & I		0	0	0	0	0	0	0
VD(delta D) optimum	G & I	(wac D*(KD+delta D)/rf)*(1-((V0+ delta D)/(VB*((	**18,679**	**8,035**	**9,045**	**3,075**	**2,780**	**2,962**	**33**
bankruptcy cost on Debt Value	G & I	deltaD- (VD(deltaD) +VD sans int BC	78	148	61	113	171	47	11
Remainder excluding bankruptcy cost to be assumed it	G & I		351	71	286	303	220	330	-2
delta needed for reembursing	G & I	US recovered investment	73	**346**	359	393	440	387	175
corr	G & I	adjustment coeff of VB for VE, hypoth BC does not it	0.93	1.05	1.02	4.04	1.00	0.98	1.08
VE 0 Leland	G & I	V0*(1-EXP(-(X+1)*LN(V0/(VB/corr))))	28,283	24,926	10,864	4,909	5,459	4,558	1,362
VE(delta D) Leland	G & I	(V0+delta D)*(1-EXP(-(X+1)*LN((V0+delta D)*coef	28,561	24,869	11,137	5,234	5,630	4,878	1,194
VS Leland	G & I	VE Leland -VD Leland	9,882	16,835	2,093	2,158	2,850	1,916	1,161
		check	9,882	16,835	2,093	2,158	2,850	1,916	1,161
	check	VS= VE0-VD0+delta D-cost BS	10,311	16,642	2,440	2,574	3,241	2,292	1,169

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