GDP vs EVA as an Economic Indicator

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GDP VS EVA® AS AN ECONOMIC INDICATOR

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This article discusses the limits and charactristics of GDP as economic indicator and suggests that an Economic Value Added (EVA®) approach would be more accurate and appropriate to measure macroeconomic performance. The main difference is that EVA® takes into consideration the invested capital cost of opportunity, while GDP is focused on quantity of production; an EVA® approach will be focused on the economic result of production activities. A final comment is made on the characteristics and limits of a GDP calculated using the EVA®

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Introduction: The Role of Economic Indicators

Interest in economic indicators and measurement of the market gained relevance with the "Great Depression" of 1929; until then there were no such big crises and there were no imperative needs to estimate economic performance. The Great Depression shook the market to a great extent, and it became very difficult to know where the economy stood. There were two reasons to start measuring the economy with more care: First, to assess whether the "new policies" were achieving positive results and how much the economy had recovered from the crisis, and second, to follow economic performance with the purpose of avoiding further crises as valid economic indicators could allow for evaluation of economic policy outcomes. The interest in economic measurement thus had practical objectives rather than theoretical ones.

There are many economic indicators, but surely the most important is the Gross Domestic Product (GDP). As its name suggests, this indicator tries to measure how much an economy has produced. Its importance lies in the fact that GDP attempts to measure how much income a whole country produces in a given period--generally a year. This indicator is also central, as it is used to obtain other important parameters like GDP per capita, growth ratios, economic openness, and measurements such as debt as percentage of GDP. The significance of this indicator is evident, which is why it is so important to have an accurate measurement of it.

However, three deeply important pitfalls affect economic indicators. First, they are taken to be much more accurate than they actually are, which creates an aura of "holiness"

around them. This is what Oskar Morgenstern called "specious accuracy".[1] Second, they were also initially employed with a theoretical background that was not concerned enough with the quality of the data. Third, and most important, regardless of the inaccuracies of economic indicators and their use or misuse, they are actually concerned with accountancy or physical output rather than with economic value results. In other words, if the data were perfectly recollected and perfectly processed without statistical error, GDP (as well as GDP real growth) will still not be a proper indicator of the economic situation. Mark Skousen, for example, pointed out that the GDP is a Keynesia-inspired statistic that may lead to mischief, especially by inducing the idea that an increase in government spending results in an increase in economic growth as economy is assumed to be driven by consumption, variable that represents the largest part of GDP.[2]

The aim of this article is to suggest a fixed approach to measure economic growth based more on financial results rather than on production output.

Some Limitations of the GDP

GDP is usually defined as the indicator that "combines in a single figure, and with no double counting, all the *output* (or *production*) carried out *by all the firms, non-profit*

[1] Cf. Morgenstern, O. (1950). *On the Accuracy of Economic Observations* (1963 ed.). New Jersey: Princeton University Press. p. 62: "Roughly speaking, specious accuracy is often found in providing information down to several decimals points when no conceivable use can be made of such detail – even if the data, given to this degree, should be entirely free from error, which is usually impossible."

[2] Skousen, M. (2005). *Vienna & Chicago. Friends or Foes?* Washington: Capital Press. p. 287.

institutions, government bodies and households in a given country during a given period, regardless of the type of goods and services produced, provided that the production takes place within the country's economic territory."[3] In other words, it refers to how much has been produced in a country (or region) in a given period of time. The following quote shows the importance national accounts manuals give to GDP:

> GDP is the most important aggregate derived from the production account. GDP reflects the aggregate production of an economy. The growth rate in the volume of GDP summarizes the growth rate of the economy. *Growth in GDP would allow for increases in either final consumption of the population and the government or investment in capital goods. The latter is expected to accelerate the growth rate of the economy.*[4]

There are many known criticisms of GDP, especially in that is not properly measuring the whole market. For example, GDP calculation does not distinguish between the production of capital goods and final consumption goods (quality and quantity of growth). The black market cannot be properly measured either, so it has to be estimated.[5] The same happens with voluntary work and inputted rents (people and firms living and working in their own houses and buildings); they also have to be estimated somehow.

[3] Blades, D., & Lequiller, F. (2006). *Understanding National Accounts.* OECD. p. 15.

[4] United Nations. (2003). *National Accounts: A Practical Introduction.* New York. p. 4. (Italic added)

[5] The OECD 2006 Understanding of National Accounts states that the black market is "estimated to be anywhere from 2% to 15% of GDP in OECD countries" (page 101) and that in "the case of France, for example, these adjustments increase GDP by around 4%" (page 37). This and other estimations confirm that the 2% standard deviation we used as an example of growth rate scenarios in Tables 1 and 2 are quite optimistic.

These effects might not be a minor detail; free developments such as Linux that have a high impact on the market cannot be properly measured. If these kinds of developments have no market prices because they are free, it becomes very difficult to measure its contributions to GDP. Another critique is that government services are computed at the cost of production instead of at market prices. And of course, GDP does not consider many important aspects such as health, cultural richness, quality of life, etc. In a more general and drastic view, Rothbard argues that GDP is wrongly conceptualized as it is concentrated on consumption rather than production, and this may result in considering government consumption as an output while he considers it to be more proper to regard it as a full cost. He concludes that any person who believes that, net from private market, in GDP is more than 50% loss should conclude that government spending should grant his conclusion as more realistic.[6]

This structure of the GDP calculation also results in some paradoxical situations. For example, if an earthquake destroys many buildings, their reconstruction increases the GDP. If an infection affects many individuals, GDP grows due to hospital activities, regardless of the fact this is not a better situation; similar effects also occur as a result of other activities such as military production.

[6] Rothbard, M. N. (1963). *America's Great Depression* (1975 ed.). Kansas City: Sheed and Ward, Inc. p. 296. Whether we believe that Rothbard has exaggerated by saying that "all government spending is a clear depredation," he actually points out a true problem of GDP--that it does not take productivity into account in proper economic terms.

It might be argued that the resources used in reconstructing buildings or healing the diseased would be used through other goods and services if they had not been destroyed previously and GDP would have increased anyway, but it is a very different situation to have an increase in GDP because of reconstruction than because of new goods and services being produced. How do we know, just by looking at GDP, if we are growing or reconstructing? GDP is a measure of production flow, not of accumulated welfare. This is important because we cannot know if its value represents new goods and services or just reconstruction and depreciation coverage. GDP is about production, not about accumulation and economic value. If we know and are conscious of the fact that GDP is a production flow and not an accumulated welfare indicator, why is so much focus is given to GDP as a growth indicator? Morgenstern concluded that this construction is far from efficient and "belong to the Dark Ages."[7]

From this, we can conclude that economic growth leads to positive GDP growth rates, but a positive GDP growth rate does not necessarily mean economic growth. If in Period 0, a country produces 100 buildings while an earthquake has destroyed 500 buildings, and in Period 1, this same country produces 200 buildings, the GDP shows growth with respect to Period 0, but the absolute and relative situation of Period 1 is worse.

However, there is another important problem with GDP, which is that it might also show positive growth rates while accumulated capital is being consumed. GDP cannot

[7] Morgenstern, O. (1972). Thirteen Critical Points in Contemporary Economic Theory: An Interpretation. *Journal of Economic Literature*, 1163-1189. P. 1185.

distinguish when a rise in production is due to new investment projects rather than to capital consumption. Take, for example, a bus company that has 10 buses performing one round per day each. The bus company decides to increase its production by offering 11 rounds per day, but not by investing in a new bus but making one of them perform two rounds instead of one. This results in an increase in GDP (an additional round of bus service) while capital is being consumed (the wear and tear on buses being utilized twice as much); note that this increase in production is not to replace depreciated or "destroyed" assets, rather, this is a different situation affecting GDP than the one proposed in the previous paragraph. To conclude that the country is growing would be to misinterpret the information; the country is actually shrinking because it is consuming its capital. Only if the income from the extra round is invested at a higher rate than the bus depreciation will the economy actually grow.[8] GDP can increase for many reasons other than economic growth. If an individual decides to consume all the food stored in his refrigerator, it does not mean that his income is growing because his consumption has increased; it means that he is consuming his capital. This is not economic growth, this is economic shrinking. GDP cannot distinguish between these two different situations. We may argue that it is not in the nature or purpose of GDP to distinguish between these two effects, but if that is the case then economics should use a better proxy than GDP as an indicator of economic performance.

[8] This is not a minor detail. If we look at the growth rates of Argentina in the years following its last crisis, how can we know how much of the GDP growth is real growth and how much is due to capital consumption? How certain can we be that Argentina is really growing instead of seeming to grow because it is consuming the savings of previous years?

Now, this is not just another GDP pitfall that we might disregard as insignificant; this implies a conceptual problem with GDP, as we cannot trust in the sign of the growth rate either. To be more precise, GDP is not equal to economic income even after discounting depreciation, capital transfers, and/or holding gains and losses (because of price movements). All the pitfalls and deviations of GDP are translated to any other indicator based upon it. As we can see GDP is an unreliable indicator of economic performance; only in some cases GDP is aligned with the real economic situation. GDP and its derivatives (GNI and others) are *inadequate* as indicators of economic performance, not only because of the impact the statistical errors do have, but because they are unable to properly measure the situation in economic terms.

Accountancy Value Added versus Economic Value Added

There is special attention given to GDP to measure the "value added" of each production process stage to avoid double counting, so each firm is computed only according to the value it adds in the production process. Although the spirit or intention of the value added is correct, the problem with the GDP is that it drags with it all the problems and inaccuracies of conventional accounting. As stated in a United Nations report, GDP and national accounts are based on the same principles as accountancy:

> National accounts is the macroeconomic depiction of the national income cycle using the double entry bookkeeping principle of business accounting and a

> sequence of accounts to show the relationship between the various economic variables.[9]

Accountancy reports, such as the balance sheet and income statement, are intended to report on the situation and performance of firms and organizations. However, these results are very different from financial ones; accountancy is more focused on the legal situation of the firm than the economic situation. This is very important because national accounts and GDP are calculated based on accountancy principles and not on economic results.

Accountancy reports show, for example, how much has been sold, but not how much of the sales have actually been collected. Accountancy shows how many costs are involved in the production process, but not how much of those costs have already been paid. Different conventions result in as many different possible accountancy reports as there are possible combinations within accountancy practice. Accumulated stocks can be computed using different methodologies, and research and development can be considered to be a cost or an investment. Many other conventions can be found in accountancy practice. This has important significance because the economic results and market value of a firm has only one, not many as accountancy can offer. Moreover, we cannot even be sure that any of the possible accountancy results is the correct one; in

[9] United Nations. (2003). *National Accounts: A Practical Introduction*. New York. p. 4.

fact, it is more likely that all of them are wrong. Following Alfred Rappaport, while profit is opinion cash is a fact.[10]

This disassociation is what makes it so important for financial reports to reach more accurate economic results. The value and economic performance of the firms ultimately depend on their cash flow structure.

It might be argued that the income statement can be corrected to have a "cash-flow statement", but the main problem is that accountancy and similar methodologies do not take into account the cost of (invested) capital.[11] This cash-flow statement will show whether the activity is making profits in the sense that income can cover the cost of operations; but not in the sense that it covers the cost of opportunity of the invested capital. An investor will become a partner of a firm and contribute with capital only if the profits are big enough to cover his opportunity costs.

Two firms reporting the exact same income statement and exact same cash-flow are in a very different situation if one of them has an invested capital of 100,000 and the other of 1,000,000. The second one is in a worse situation because it needs an investment that is ten times bigger than the first one to obtain the same cash-flow.

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[10] Rappaport, A. (1986). *Creating Shareholder Value. A Guide for Managers and Investors* (1998 ed.). New York: The Free Press. p. 15.

[11] To be more precise, accountancy only considers the cost of capital that corresponds to liabilities. The total capital invested in any firm is equal to the equity plus the liabilities taken from lenders. The difference resides in where the capital comes from, but both are part of the firm's capital. If the income statement computed the cost of capital as is done with liabilities interest, the result would be much more accurate.

As we can see, this is very important because the value added we mentioned above and how it is computed in accountancy reports does not correspond to its economic concept. "Accountancy value added" is a different concept than "economic value added" (EVA®).[12] Roughly defined, the cost of opportunity of the invested capital should be deducted from the accountancy profit in order to reach real economic profit.

Economic Profit = Accountancy Profit – Cost of Capital

The absence of the cost of capital means that values added in the conventional sense and accountancy reports are overrated. The following quote from Bennet Stewart III shows that the importance of capital's cost of opportunity is far from insignificant:

> How substantial is the accountant's neglect of the cost of equity? Massive. The 1,000 largest U.S. firms ended 2001 with book equity of about $2.9 trillion. At a 10% rate, the cost of equity is on the order of $290 billion. *To put that in perspective, the equity capital charge is more than three times as large as the $96 billion in aggregate net income those firms reported that year.* True, 2001 results were depressed for many reasons, but the impact of ignoring the equity capital charge is simply stupendous. It is the greatest fraud ever perpetuated upon the investing public. It is the single most significant governance issue in the accounting system. It needs to be at the top of everyone's list for reform.[13]

[12] EVA® is a trademark of Stern Stewart & Company.

[13] Stewart III, B. (2002, September). Accounting is Broken. Here's How to Fix It. A Radical Manifesto. *EVAluation*. p. 5. (Italic added)

Without considering the capital's cost of opportunity, the concept of value added becomes limited. As accountancy value added does not consider the cost of capital, it has bias to be higher than the economic value added. How can we know, in economic terms, if a firm is making economic profits if we do not consider the cost of opportunity of the capital? To know if there is economic profit, the return of invested capital (ROIC) and the weighted average cost of (invested) capital (WACC) has to be compared. Furthermore, to know the size of the economic profit or loss, the amount of capital invested has to be considered. The following equation shows this relationship.

$$EVA = (ROIC - WACC) \cdot Capital \tag{0.1}$$

We can relate the ROIC with the "cash-flow statement" we mentioned a few lines before. The relationship between real operative cash-flow and the capital gives us the capital rate of return. This operative result is known as NOPAT (Net Operative Profit After Taxes):

$$ROIC = \frac{NOPAT}{Capital} \tag{0.2}$$

This relation is very important, because without the capital we cannot know the weight of the NOPAT in relation to the investment done--the cash-flow statement is only part of the information needed. It should be mentioned that these variables should be understood from an economic point of view; capital consumption, in economic terms, is

not a deterioration of the physical form of the capital good, but a loss in its economic value.

Note that in the EVA® formula, when the ROIC equals the WACC there still are *profits*, but not economic added profits. When the ROIC equals the WACC, profits are precisely in the amount where it covers the cost of opportunity and there is no reason for investors to leave or enter the project. A positive EVA® is what classical economists called "extraordinary profits," and an EVA® equal to zero represents what they called "ordinary profits". The absolute amount of these ordinary profits, the ones received in the state of equilibrium, will be the NOPATs of each firm. A positive EVA® is what the entrepreneurial activity tries to achieve. If the ROIC is smaller than the WACC, then capital is being consumed. Economic growth means discovering market opportunities with positive values of EVA®.

As long as GDPs and national accounts are built using accountancy practices without considering the cost of capital, their results will remain economically imprecise.

Economic Value Added and Economic Growth

The EVA® approach gives a new focus of how to measure GDP and economic growth in a more coherent manner. If the GDP is the aggregation of production, the "Economic Value Added GDP", which for the moment we shall call GDP(EVA®), should be the aggregation of the firms and agents' EVA®.

GDP(EVA®) growth thus occur if the production of the firms and agents cover and excel the cost of opportunity of the capital (liabilities and equity as well).

Economic growth and performance requires high productivity, as there is no way to consume what has not been produced; however, economic growth and performance is not about producing just anything, but rather about producing what should be produced in the appropriate way. As the EVA® approach is more accurate than accountancy and conventional GDP calculation approaches, its result will be more focused on economic value and the result will have more economic meaning.

Again, entrepreneurs seek to gain extraordinary earnings, which refers to a positive EVA®; entrepreneurs are in a state of *alertness* trying to find projects where ROIC is bigger than the WACC. The correlation with economic growth is now more direct than with conventional GDP; if measured well, there will be no more cases of economic growth when, for example, an individual increases his consumption by depleting his refrigerator. That is why it seems that GDC, Gross Domestic Consumption, should been a more accurate expression rather than GDP. The reason why certain projects achieve a positive EVA® is because the prices consumers are willing to pay for the project's final good or service is higher than the cost of production and resources required; this means that entrepreneurs can put in a higher bid to acquire the resources needed. When an opportunity like this is spotted, entrepreneurs reassign resources to this new project because its EVA® is bigger. Note the following quote from the first page of Bennet Stewart III's "The Quest of Value":

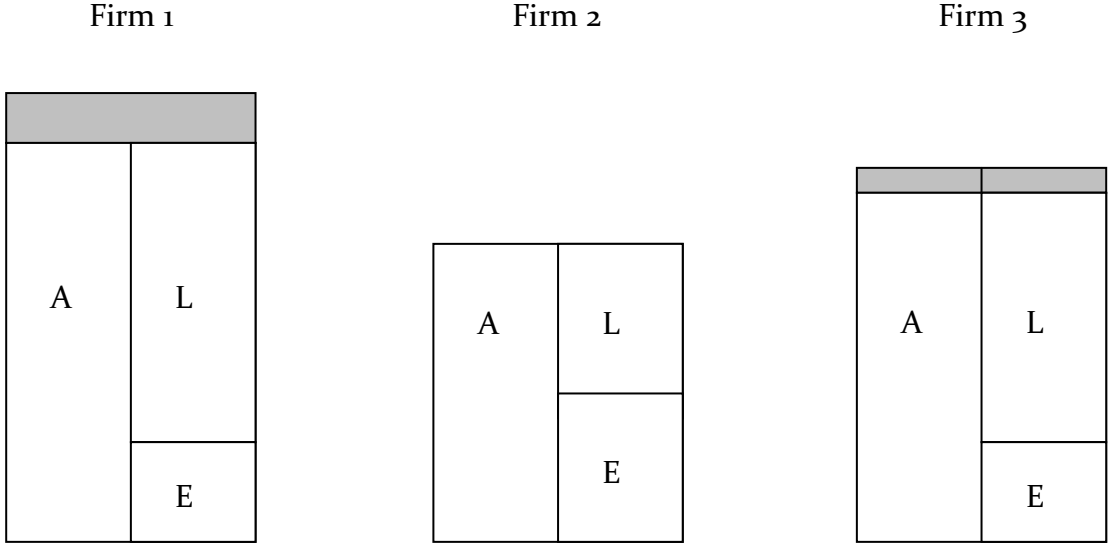
> A quest for value directs scarce resources to their most promising uses and most productive users. The more effectively resources are deployed and managed, the more robust economic growth and the rate of improvement on our standard of living will be. Adam Smith's invisible hand is at work when the investor's private gain turns into public virtue.[14]

This reassignment means a shift to a better production structure, resulting in economic growth. If the reassignment of resources has been evaluated well, then the EVA® of the new project is higher than the EVA® resigned of the previous project. Thus, the EVA® differential represents the economic growth. This attitude of spotting unseen opportunities was expressed by Kirzner by saying that the entrepreneurial activity consists more in noticing that curves of costs or revenues had already shifted than shifting them.[15]

The following diagram shows three firms with its assets (A), liabilities (L), and equity (E). The size of the firms is given by total capital invested, which is the sum of liabilities and equity. Firm 1 spots an EVA® opportunity and takes resources originally used by Firm 3, which is marked by the grey area. The grey area in Firm 3 is the firm's value shrinking because it has to resign the resources now used by Firm 1.

[14] Stewart III, B. (1990). *The Quest for Value.* Harper Business. p. 1. The idea of value maximization is more accurate than conventional profit maximization; a quest for value will result in profit maximization, but the other way around does not necessarily follow.

[15] Kirzner, I. M. (1973). *Competition & Entrepreneurship.* Chicago: The University of Chicago Press. p. 81.



In our example, economic growth would be Firm 1's EVA® minus Firm 3's EVA®. The total aggregate will then be the sum of all *n* firms' EVA®:

(0.3) $$GDP(EVA®) = \sum_{i=1}^{n} (ROIC_i - WACC_i) \cdot Capital_i = \sum_{i=i}^{n} EVA_i$$

Note, once more, that a ROIC equal to the WACC does not mean zero production; it means that the market is not beating the capital cost of opportunity - it is just covering it. However, the main point is that there will not be positive values when the opportunity cost of the capital is not being covered and profits are not large enough, such as in the example of the bus company performing additional rounds without investing in new vehicles. Economic growth will depend on ROIC rates, WACC rates, and capital assigned to each project, firm, or agent. The following table summarizes some possible scenarios

with three firms, from high aggregate growth in the first line to depression in the last line.[16]

	Firm 1	Firm 2	Firm 3
1	(ROIC > WACC) Capital	(ROIC > WACC) Capital	(ROIC > WACC) Capital
2	(ROIC > WACC) Capital	(ROIC > WACC) Capital	(ROIC = WACC) Capital
3	(ROIC > WACC) Capital	(ROIC = WACC) Capital	(ROIC < WACC) Capital
4	(ROIC = WACC) Capital	(ROIC < WACC) Capital	(ROIC < WACC) Capital
5	(ROIC < WACC) Capital	(ROIC < WACC) Capital	(ROIC < WACC) Capital

This approach divides growth into two parts: return and cost rates on one side and capital invested in the country on the other. This means that the ROIC and WACC spread is part of the growth data, the amount of capital invested is also needed to know how much a country is actually growing. If the aggregate shows an increase in GDP(EVA®), then there is market value added or an increase in the market value. A given country A with 1,000,000 capital investment and a 1% ROIC-WACC spread growth accumulates more capital than a given country B with a 2% ROIC-WACC spread but only 100,000 capital invested.

[16] This should be taken solely as an example to make the idea more clear; in reality many more firms and agents exist and many more combinations can occur, such as different firms having different amounts of invested capital or risk premium in their WACC. Also, different sectors might be interrelated, and bad management in one of them may result in a negative EVA® affecting other sectors with positive EVA®, etc.

Country A	Country B
(ROIC – WACC) Capital = EVA	(ROIC – WACC) Capital = EVA
1% $1,000,000$= $10,000	2% $100,000= $2,000

We could still calculate the GDP(EVA®) growth in the traditional way by dividing their values, such that for a given period *t* the growth rate will be:

(0.4) $$GDP(EVA®)\text{Growth Rate}_t = \frac{GDP(EVA®)_t}{GDP(EVA®)_{t-1}} - 1$$

However, the GDP(EVA®) does not show us the total economic value of each period, it gives us the new economic value that has been added. Therefore, this proportional relationship does not compare the total value of the market in two periods, but rather, how much economic value was added in each period. If in period *t,* the GDP(EVA®) is 10, and in period *t+1* is 5, then the result will give us a -50%. This represents the proportional variation of the aggregation of economic value, not the economic value added from one period to another. That is, the absolute growth has decreased by 50% from period *t* to period *t+1*, but the economy is still growing.

If there is a variation in the total capital for other reasons than the EVA® accumulation, then the result will be biased. For example, this equation would still show a positive growth rate in cases such as the aforementioned example of building reconstructions after an earthquake, GDP(EVA®) is still a "flux" indicator. It is true that perhaps more economic value was added, but the problem with this approach is that it assumes the

value of reference –number of buildings– is constant. Another possibility that allows us to secure more information is the following:

(0.5) $$GDP(EVA®)\text{ Growth Rate}_t = \frac{GDP(EVA®)_t}{Capital_t}$$

This equation has the advantage over equation (0.4) that it allows us to see the "Capital" value of the period we are measuring, which has the advantage of being more transparent by providing more information and does not assume that the base value (in this case the capital), is constant in each year. If there is no change in the reference value (number of buildings) for other reasons than GDP(EVA®), both calculations give us the same results. If in period *t* there is $1,000,000 in capital and the EVA® rate is 10% percent of the capital value, the capital of period *t+1* will be the previous capital plus the EVA® obtained in period *t*. If in the next period, the EVA® rate is still 10%, it does not matter whether we compare the GDP(EVA®) growth rates or the EVA® over capital as growth rates.

Table 4

$Capital_t$:	$1,000,000
GDP $(EVA®)_t$:	$100,000
$Capital_{t+1}$:	$1,100,000
GDP $(EVA®)_{t+1}$:	$110,000

Note that if we measure the growth rate as the ratio between the GDP(EVA®) of each period or the ratio of GDP(EVA®) over capital, the final value is the same. In both cases,

the result is 10%. But if in the meantime, capital is lost between period *t* and *t+1* due to a natural disaster, confiscatory policies, devaluations, or any other reason, then the difference between the two methods for calculating the growth rate becomes important. Assume that $200,000 of capital has been lost due to one of these factors. Now, the values in the previous table become:

Table 6

$Capital_t$:	$1,000,000
GDP $(EVA®)_t$:	$100,000
$Capital_{t+1}$:	$900,000
GDP $(EVA®)_{t+1}$:	$110,000

If this is the case, then the conventional growth rate used in national accounts will show us a growth of 10%, but if we use equation (0.5), the result is 12.22%:

$$GDP(EVA®) \text{ Growth Rate}_t = \frac{GDP(EVA®)_t}{Capital_t} = \frac{\$110,000}{\$900,000} = 12.22\% \quad (0.6)$$

If the size of the economy is given by the invested capital, then this equation is more transparent and accurate than when capital is lost *in the meantime* for any given reason.

There is another advantage of using the GDP(EVA®) approach, and it is that it can be discomposed in something similar to GDP(EVA®) drivers by splitting the EVA® contribution of each sector *s*:

(0.7) $$GDP(EVA®) = \sum_{s=1}^{n} \frac{GDP(EVA®)_s}{Capital}$$

This relation can show us which sectors are adding more economic value to the economy as a whole. On the other hand, if we compare each sector's GDP(EVA®) with its own invested capital, we can see which sectors are growing at higher pace. For example, if Sector 1 has a higher EVA® than the other sectors, higher investments in that branch of activities might be expected.

(0.8) $$GDP(EVA®) = \sum_{s=1}^{n} \frac{GDP(EVA®)_s}{Capital_s}$$

As the EVA® approach gives a more accurate and precise focus and calculation, more confident and clear analyses can be performed on countries' economic performance. Equations (0.7) and (0.8) can be used regardless of what type of analysis is being done; however, the information they provide is clearer than the conventional GDP minus depreciations and other similar indicators. As we have seen above, as conventional GDP confuses accountancy value added and depreciation with capital cost of opportunity, its result lacks economic meaning. Therefore, adoption of a more financial or economic approach is much more useful and powerful than traditional national accounts.

Conclusion: Limitations and Uses of the "GDP(EVA®)"

Our analysis would not be complete without a mention of the problems and limits of GDP(EVA®). National accounts, and developments such as the GDP(EVA®), can only be properly used if we know their limitations. Some of these problems were analyzed in the first two parts of this article.

We know that the GDP(EVA®) focuses on more accurate and appropriate economic concepts, but that does not mean those variables are easily measurable. However, economics as a science should be guided by concepts and theory and not by what happens to be easily measurable; this situation does not resolve the scientific problems, but rather, avoids them.[17] Once the wrong measurement is made into a common practice, its relation to the concept it is supposed to represents begins to be accepted without any questioning.

GDP(EVA®) indicators can be much more accurate representations of how the economy is performing. The difference between conventional GDP and GDP(EVA®) is not the presence of statistical error, but the focus on the proper information.[18] Having a focused indicator means we need to be concerned *only* with the statistical error and not with the indicator's internal problems.

[17] See Hayek, F. A. (1974). The Pretence of Knowledge. *Nobel Memorial Lecture*.

[18] On the statistical problems of measuring economic indicators see Morgenstern, O. (1950). *On the Accuracy of Economic Observations* (1963 ed.). New Jersey: Princeton University Press.

Of course, it might be very difficult to purely and perfectly measure GDP(EVA®) because it suffers from some similar measurement problems than the conventional GDP. For example, the WACC might be difficult to obtain as all its components are not always open to public knowledge and ultimately rest on subjective valuation. The government WACC represents another problem (perhaps an interesting proposition would be to use the "market ROIC" as the government WACC, to really see if the state is adding value to the market. If not, then the "government's EVA®" will show an economic deficit), but it also has some advantages because it is concerned with cash-flow rather than accountancy type reports, and any activity can be traced back to its cash movement. For example, a government-provided service can be discomposed in its incomes and outcomes of cash; if these activities are financed by taxes, then the EVA® of the contributors will diminish, and thus, the EVA® will have better aggregate coverage.

GDP(EVA®) is not free from statistical error either, but having a faulty indicator like GDP does not help. As Bennet Sewart has said, the "cost of equity cannot be measured precisely, *but as the accounting framework assumes it is zero, any systematic measurement technique that conforms to modern finance theory will significantly improve upon that estimate and render profit figures that are generally more relevant and more accurate.* Even using a 10% charge across the board would be better than continuing with the current assumption that equity is costless, but it is certainly possible to be even more accurate

than that because most managers are already making an assumption about the cost of equity."[19]

The GDP(EVA®) is a better indicator than the conventional GDP not because it is better in statistical terms, but because is better in economic terms. But having the proper indicator is only half of the equation. This information must be provided with an estimated error, as other sciences provide with their own indicators. Statistical information is meaningless without this error approximation, and the information is even less useful if it is not even focused on economic results. Economics should thus be more focused on finance in economic calculations, and much less on accountancy, as the former corresponds to economic calculation while the latter does not.

[19] Stewart III, B. (2002, September). Accounting is Broken. Here's How to Fix It. A Radical Manifesto. *EVAluation*. p. 5. (Italic added)

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