

ERIC VORAVONG, CFA

## THE LONG-TERM GROWTH CONUNDRUM



Eric Voravong, CFA  
ESG Analyst & Portfolio Manager

We believe a very common limitation in the way market players approach valuation is that, in essence, they view it as a photograph instead of a film. They look at snapshots instead of a motion picture. They always seem to think that at each point in time, the value of a company is a fixed, determined object and fail to see that it is more of a living organism. There is a dynamic of both value appreciation and logical price evolution that is thereby missed. A few misconceptions or contradictions ensue.

As a case in point, many market players claim to be long-term investors, when they are in fact traders. This is because their investment strategy consists in buying assets at prices below their so-called “intrinsic value” with the expectation that later prices will converge towards this defined value. The corollary of that logic is that once the market perception of the asset as expressed by its price is back in sync with its value, there is no more justification for the investor to keep holding the asset (that is as long as (s)he is dedicated to outperforming the average market return). So the rationale of buying below intrinsic value and waiting for prices to catch up with value is really a buy-and-sell strategy, in other words a trading strategy. Of course, it may take a while for the gap to close. But the key point is that the objective interest of such a strategy is fast rotation because the excess return will be inversely related to the time taken by the market to align prices with value. If for example we suppose that an asset intrinsically worth 100 is bought at 50 and sold one year later at its appropriate updated value (108 assuming an 8% discount rate), the return will be 116%. Yet this return will drop to 26.5% if sold after the market takes 3 years to recognize the value (then at 126). So the strategy will be all the more successful that positions can be quickly liquidated and replaced by new ones, in line with a trading approach.

In contrast, the genuine long-term investor is one whose objective interest is to keep holding the asset. What kind of investor would benefit from a true buy-and-hold strategy? The quality-growth investor. Why? What is different in the case of growth investing? Why would this decreasing return phenomenon not apply to all growth stocks too?

Indeed, isn't it simply a universal truth of sound investment<sup>1</sup> that, whatever the form and underlying merit of any financial operation, its return may only exceed the cost of capital – or discount rate – if it is bought at a price below value and sold at a price closer to or at value. Thus, shouldn't a growth investment also benefit from a fast rotation? Why then would growth investing be more prone to buy-and-hold?

There is a little mystery here that needs to be further looked into. We call it “the long-term growth conundrum”. As we will see, to unravel it requires thinking in a dynamic rather than static way in order to understand that value sometimes is not stable but can evolve and increase overtime.

<sup>1</sup> The notion of “sound investment” is meant to exclude the speculative cases where an asset may be bought at a price irrespective of its underlying value, thus potentially above value, and profitably sold back at an even higher price.

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It is true that all outperforming assets have to be backed by a price-value differential. Again, if an investment is made at a price equal to value, i.e. to the sum of its discounted cash flows, and if those cash flows turn out to be exactly in line with projections, then the return will simply equal the discount rate, whether there is growth or not. An investor therefore cannot outperform the discount rate unless one of two conditions apply (or both): that effective cash flows exceed initially projected cash flows, or that the purchase price was lower than the value of adequately projected cash flows.

Of course, in the case of a stock that is held in a portfolio for the long run, the idea of sustained outperformance over many years cannot just rest on a low historical acquisition price but needs to be fueled on an ongoing basis by a continued generation of cash flows above expectations.

So the question of the long-term growth conundrum may be restated as such: by what longterm outperformance mechanism could certain categories of growth stocks repeatedly exceed market expectations and see their value continue to appreciate lastingly?

To illustrate and understand the workings of this mechanism, we will refer to the exemplary investment case provided by the Coca-Cola Company through its historical evolution since its IPO in 1919.

This example is obviously very unique, and the purpose of the exercise at hand is to break up a process and display a possibility, not to address the challenges and odds of identifying equally successful companies in the future, although we may note that Comgest has in the past demonstrated an ability to store a number of these “long-term growers” in its portfolios.

### The Coca-Cola Company (KO) investment case

On October 15, 1998, addressing students at the University of Florida, Warren Buffett mentioned the spectacular wealth that a long-term investor could have amassed by buying into Coca-Cola at inception: one original share priced at \$40 when the company went public in 1919 had turned into a \$5,000,000 market value. It seemed to us that it would be instructive to look into this case in detail and study the value creation mechanism at work in this example of a long-term grower. So we dug into all the annual reports published from 1920 to 2013 to review the data. We saw that the \$5MM mentioned by Warren Buffett represented indeed what would have become of one original KO share, dividends reinvested year after year, as of the end of 1996. As of year-end 1998, this value was actually closer to \$6.7MM. At the end of 2013, it had reached \$11.5MM.

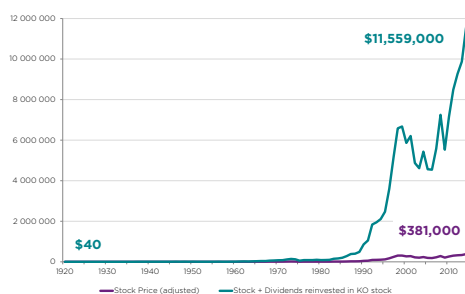
### The process of financial value creation for shareholders

When examining this value creation phenomenon, three main observations come out.

#### - The power of compounding

The transformation of a mere \$40 into \$11.5MM is a result of the exponential effect of a long-term growth, which albeit a few inevitable incidents, has essentially been sound, enduring and steady.

Figure 1: Stock price and total shareholder value 1919-2013 (dividend reinvested).

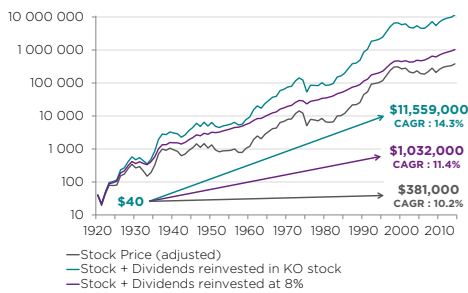


Source: Comgest

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Figure 2: The power of compounding



Source: Comgest

Throughout its history of almost a century as a public company, KO has only exhibited profits, and therefore a consistent growth of its book value per share (BVPS). Annual results have occasionally declined from previous year (18 times out of 94, less than 1 out of 5) but have always remained in the black, with an average annual growth of 12.7%.

Of course, in terms of long-term performance, what matters is not the arithmetic but the geometric mean, i.e. the Compounded Annual Growth Rate (CAGR) which was 10.0% over the 1919-2013 period for EPS.

In terms of total return, when adding dividends, the CAGR of the progression in wealth for a shareholder reinvesting each year all dividends into KO shares would have been 14.3% for 94 years.

We can anecdotally note that the so-called “law of 72” – which is meant to calculate the number of years that it would take for a given value to double depending on the growth rate – indicates that the market value of the KO investment practically doubled every five years<sup>2</sup>.

### - The importance of dividend reinvestment

The growth of the readjusted share price itself was 10.2%. Over the years, the 1919 original share has been divided on 11 occasions to finally equate 9,216 shares of 2013. At a price of \$41.31 at year end 2013, the value of the \$40 original share – excluding dividends – was thus \$380,713, hence a CAGR of 10.2%.

So out of a total of \$11.5MM at year end 2013, the original share itself only represents 3.3%, while 96.7% of the total theoretical investment value come from the reinvestment of dividends<sup>3</sup>.

We may notice here that although a recurring purchase of shares in the market could have been feasible for an isolated investor determined to keep his entire initial bet on KO, it would not have been possible for all KO shareholders. By definition, to buy additional shares of the same company implies that other shareholders go the opposite direction and sell. A shareholder who would have owned 1,000 KO shares in 1919, or 0.2% of capital, and reinvested all dividends in KO shares would have seen its stake grow to 6.4% by 2013. In other words, the Coca-Cola company as a whole could not have grown during all this time at this CAGR rate of 14.3%.

If applied to the whole company, a 14.3% growth rate would have meant that its market cap at year-end 2013 would have reached close to \$6,000BN instead of \$182BN. (This considerable impact that results from the difference between a CAGR of 10.2% and one of 14.3% is another meaningful illustration of the power of compounding.)

2 The “law of 72” – which divides 72 by a growth rate or a number of years – approximately indicates, for growth rates below 20%, the number of years that it would take for an investment to double in value, or conversely, for a given number of years, the growth rate that would allow the value to double. In our KO case, we have:  $72 / 14.3 = 5$ .

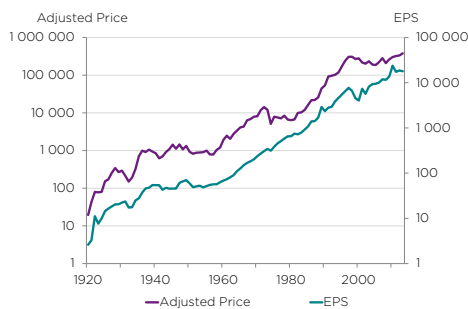
3 In this exercise, dividends are supposed to be reinvested at yearend. In reality, they could only be reinvested when paid.

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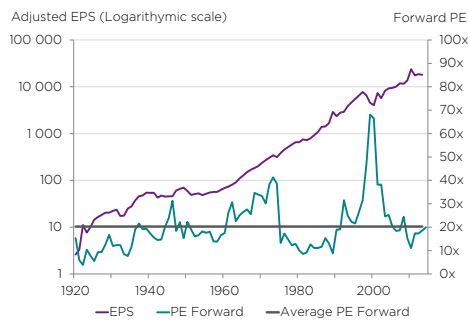
Over the 1919-2013 period, KO displayed an average payout of more than 60% and an average yield of 3.5%. The high level of dividend payment is testimony to the health of a growth that was only backed by a 40% retention rate<sup>4</sup>.

**Figure 3: EPS CAGR : 10.0%, Stock Price CAGR : 10.2%**



Source: Comgest

**Figure 4: Average PEs: 22.0x Trailing, 20.3x Forward (retrospective)**



Source: Comgest

### - The alignment of market prices with earnings

Of course, the evolution of the stock price has been more erratic with 28 years of negative growth – almost 1 out of 3 years –. The average growth was 14.5% but more significantly 10.2% in terms of CAGR. So looking past the volatility, we could say that the price of the KO stock has by and large followed earnings.

The relative alignment through time between stock price and earnings should translate into some stability in multiples. In that respect, we can observe a fairly recurring historical PE ratio around a 20.3x retrospective forward PE average, with a few notable deviations – particularly in the 70's and in 2000 – that were however followed by returns to the mean.

On the back of this historical data, we can now try to address the following question: did the market efficiently value KO overtime?

### KO retrospective value

Let's do a little bit of finance-fiction by imagining that an investor back in 1919 could have been able to exactly foresee the evolution of Coca-Cola until 2013. How would (s)he have valued the KO share at the time of the IPO? Two approaches can be considered, depending on whether dividends are reinvested in KO shares or not.

### - Dividend Discount Model

Let's suppose the visionary investor is satisfied with a zero-risk return of 8%. After discounting dividends and terminal value at 8%, a simple calculation shows that:

Present Value = \$744.5  
Justified PE = 285x<sup>5</sup>

The prescient investor would have agreed to buy the share at \$744 instead of the \$40 price offered at the IPO. This price of \$744 would still have allowed him to get an 8% annual return for 94 years. The EPS was \$2.61 in 1920. So at an IPO price of \$40, the PE forward was 15.3x. It would have been 285x at \$744.

### - Total Shareholder Value

In the case where the investor could have reinvested all dividends each year, he would have found him(her) self owning an asset worth \$11,559MM at the end of 2013.

At a discount rate of 8%, this equate to a present value in 1919 of \$8,338.

Present Value = \$8,338.2  
Justified PE = 3,195x<sup>6</sup>

<sup>4</sup> Only a high level of ROE can make such a growth possible. In the KO case, our estimate of ROE averaged 21.7% during the 1919-2013 period.

<sup>5</sup> See appendix for detail

<sup>6</sup> See appendix for detail

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So the valuation of the KO share as it could have been measured by a prescient investor turns out to be way above and even totally out of line with the market prices not only at the time of the IPO but in many years and decades to follow.

It is important to stress however that we do not mean to suggest that Coca-Cola was intrinsically worth \$744 or \$8,300 in 1919. In any case, as Ben Graham and David Dodd made clear, there is no such a thing as a fixed and precise intrinsic value: *“The essential point is that security analysis does not seek to determine exactly what is the intrinsic value of a given security. It needs only to establish either that the value is adequate – e.g., to protect a bond or to justify a stock purchase – or else that the value is considerably higher or considerably lower than the market price.”*<sup>7</sup>

What we only believe could be reasonably inferred from the above retrospective values is that, for a long period of time actually covering decades, there was indeed a price-value differential where the value was “considerably higher than the market price” and made it justified for long-term investors to hold on to their position. This observation puts us on track to understanding the long-term outperformance mechanism behind our conundrum. As we will see, it is comprised of two key subsets: first a price-value differential of a durable nature, and second, a translation effect by which prices progressively bridge the gap towards value and make returns depart from the normal discount rate to align with the higher overall return comprised of the dividend yield plus the actual growth rate of earnings.

### The mechanism of long-term outperformance

So first, it is critical to have in mind the exponential effect that growth magnitude and foremost growth duration can produce on the intrinsic value of longterm growers. This “exponentiality”, which rests on the power of compounding, is the basis of durable pricevalue differentials.

### The durability of price-value differentials for long-term growers

#### - The exponential impact of growth duration

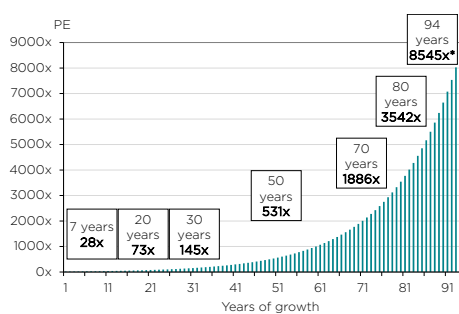
For example, if we consider a company growing earnings at 15% and calculate its PE ratio depending on duration, we find that 7 years of such growth should justify a PE of 28x (at a compound rate of 8%), 20 years would validate a PE over 70x and 30 years of close to 150x. So if growth can last for a few decades as in the Coca-Cola case, theoretical PEs soar.

Of course, the higher the growth magnitude, the more exponential the effect is.

Whenever above average growth can be sustained, this exponential effect of value creation creates a huge “value reservoir” that will support a durable price-value differential, which in turn will feed the appreciation of prices over the long run.

To further grasp the disparity between market prices and retrospective values, we can try to understand how the market has historically valued KO.

Figure 5: Evolution of intrinsic PEs with Growth Duration\*



Source: Comgest.

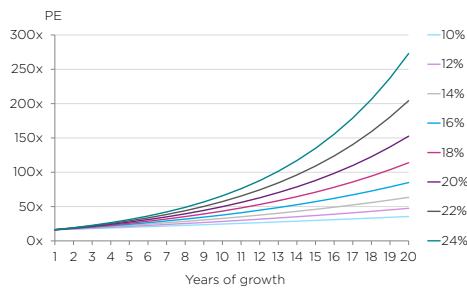
\*Annual growth of 15% for x years, followed by an infinite growth of 2%. Payout 60%, Discount rate 8%.

7 Benjamin Graham & David Dodd, “Security Analysis”

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Figure 6: PERs and growth magnitude



Source: Comgest.

### - Coca-Cola historical market valuation

A PE sensitivity analysis can help us approximately assess the order of growth magnitude and duration that the market seems to have implicitly factored in throughout the 1920-2013 period.

We will assume that KO was valued under a classic two-stage DCF with an infinite growth rate of 2%, bearing in mind the following data:

- The market has on average valued KO at 20.3x forward earnings,
- The arithmetic and geometric means of EPS growth were respectively 12.7% and 10.0%,
- In terms of dividend growth, the means were 13.7% and 9.5% respectively,
- The average payout was 60.6%,
- The return of the S&P500 over the period was around 8.5%, which can be used as discount rate.

The above Magnitude/Duration combinations indicate that, throughout KO's history, the market apparently kept pricing in a duration growth somewhere around 5 to 15 years.

It goes to show that the potential for long-term growth was not taken into account by the market which time horizon did not extend much beyond 15 years.

That explains the price-value differential commonly seen in hindsight with long-term growers like Coca-Cola.

The differential is all the more significant that the weight of the long-term increases with growth magnitude and duration. In Coca-Cola's total retrospective value – as broken down in a DDM calculation – it can be observed that the first 20 years represented less than 20%, whereas the years after 2000, i.e. beyond 80 years after the IPO, weighted for half of the total value.

Table 1: Examples of Magnitude/Duration combinations justifying a PE of 20x

Magnitude (growth rate)	16%	14%	12%	11%	10%	9%	8%
Duration (years of grate)	5	6	7	8	10	12	15
Forward PE	20.2x	20.4x	20.0x	20.1x	20.6x	20.5x	20.2x

Source: Comgest.

Thus the exclusion of the long-term growth in the valuation explains the differential between the market prices and the a posteriori value. The exponential scope of price-value differentials is the first feature that explains how they may be maintained for long periods of time. In analyst projections, while very high growth rates may happen to be forecasted, discounted periods of high growth very rarely exceed 10 years and almost never 15 years. Long growth durations are just not priced in by the market.

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**Table 2: Breakdown of KO DDM value**

Period 1 : 11 years from 1920 to 1930	51.0	6.9%
Period 2 : 10 years from 1931 to 1940	85.8	11.5%
Period 3 : 10 years from 1941 to 1950	65.6	8.8%
Period 4 : 10 years from 1951 to 1960	26.0	3.5%
Period 5 : 10 years from 1961 to 1970	24.1	3.2%
Period 6 : 10 years from 1971 to 1980	31.7	4.3%
Period 7 : 10 years from 1981 to 1990	38.1	5.1%
Period 8 : 10 years from 1991 to 2000	57.0	7.7%
Period 9 : 12 years from 2001 to 2013	90.6	12.2%
PV of Terminal Value at year end 2013	274.6	36.9%
<b>Total</b>	<b>744.5</b>	<b>100.0%</b>

Source: Comgest.

Of course, this is often for good reasons. One must not forget that all good things may come to an end. As it happens, investing in KO has been less rewarding since 1997 than in previous decades. Still, the case goes to show that the market horizon sometimes falls way short of actual growth durations.

It is not part of this paper's agenda to directly address the underlying rationales and risks that should be considered when assessing prospective growth durations, but let's note in passing that it ties into the concept of CAP (Competitive Advantage Period) which will be the focus of a subsequent Comgest paper.

### The translation effect

#### **The exponential impact of growth duration**

Prices have to catch up with value overtime. As real cash flows and earnings are gradually released, trimester after trimester and year after year, the recognition of reality should replace anticipation.

In our KO case, the variation between actual and projected results does not relate to the growth rate but to growth duration: although the anticipated growth is assumed to slow down after a few years, it actually goes on. So while in theory, this exhaustion of growth should leave room to a drop in multiples, its continuation allows multiples to remain relatively stable. As a result, the return on investment, which would have equaled the discount rate if everything had happened as originally planned, is magnified by the addition, over time, of the excess return coming from the reassessment of the growth duration.

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What happened for many decades with Coca-Cola is what can be commonly observed with long-term growers: while the valuations made by equity analysts are predicated upon the assumption of a growth period to be followed by a maturity period, in reality, year after year, the growth duration is maintained and the end of the growth period deferred. In effect, each year that goes by postpones the end of the growth horizon by a year.

It is therefore not necessary for a company to exceed expectations – in the way this idea is generally understood – to outperform. In other words, projected EPS for next trimester, next year or next 3 or 5 years do not need to be surpassed by actual results for a stock to outperform. It can beat the market by just having its growth horizon maintained. For example, if in year  $n$  10 years of growth are implicitly priced in and once we reach year  $n + 1$  the growth horizon remains at 10 years, then PEs should remain stable and the evolution of the stock price be in line with the earnings growth rate.

Thus there is a translation effect which explains the overall stability of PE multiples and the fact that, as observed with Coca-Cola (see Figure 3), stock prices follow earnings.

This translation effect induces a displacement of the natural investment return from the discount rate towards a “total investment return”.

In simple terms, this total return will equate the dividend yield plus the actual growth rate of earnings. From a theoretical standpoint, the excess return above the discount rate can be understood as the effect of the reevaluation of the terminal value<sup>8</sup>.

### Conclusion

In our view, being a long-term investor implies thinking in dynamic, not static, terms. It means seeing value as a movie rather than as a still picture.

The drawback of having a “snapshot approach” to valuation instead of an evolutionary approach is akin to the notion of parallax error. We know that looking at an object from one angle may make its position appear as different from what it would seem from another angle, and induce a misjudgment as to where the object really is. The benefit of using different angles is to gain perspective and reach a better sense of the true position of the object. In human vision, the accuracy in the perception of movement and depth is provided by binocular vision, i.e. the fact that we see with both eyes, each from a slightly different angle. This enhanced perception is called stereopsis. Some animals or birds such as chicken and pigeons lack true binocular vision but get a sense of depth by bobbing their head and thus finding different angles to see from.

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<sup>8</sup> The terminal value will in theory no longer be calculated on the basis of a final cash flow grown at a (low or zero) infinite growth rate but at the previous (high) growth rate of earnings. The excess return will also be a function of the weight of the terminal value in the total value, so actually a function of growth magnitude and growth duration.



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In a way, what we did in this paper was to apply some sort of “valuation stereopsis” by looking at valuation not only from the common ex ante standpoint but also from a more unusual ex post perspective, in order to get a better sense of the depth and movement of some growth companies’ values. This exercise unveiled the answer to the long-term conundrum: there are stocks that a growth investor can buy and hold for the long run because their values have the potential to evolve so as to offer lasting excess returns. Whenever stocks exhibit a capacity for growth that should not recede but rather be maintained in the future, the mechanism of renewed extension of the growth period over the limits of the time horizon previously set by the market can support a durable outperformance. Conversely, a rapid sale of the position will not permit to fully capture all prospective excess returns and thus will not maximize long-term returns.

One of the most fundamental laws of investment is the law of compounding and this law directly applies to the rationale for long-term growth investing. The effect of compounding is to make the impact of growth duration on valuation not linear but exponential. This “exponentiality” in turn means that the weight of the later years in total valuation is disproportionate and the potential price-value differential so massive as to create a long-term “value reservoir” that understandably cannot be fully priced in by the market.

A final takeaway is that having a long-term view does not mean trying to outsmart the market by making more prescient bets on what the future of a growth company will be 15 or 20 years from now. What buy-and-hold more modestly suggests is that as long as a certain growth horizon can reasonably be assumed to be maintained in the near future – based on the analysis of a number of quantitative (trends in sales, margins, market shares, ROCE, etc.) and qualitative (competitive advantages, strategic positioning of the franchise, ESG considerations, etc.) factors –, investors may be well advised to keep a genuine business-like mindset, strive to accompany a real-life production process over time, and avoid being too active in trading positions over daily variations in market prices. Time works against the non-growth value investor because, without growth, returns will converge towards the discount rate. But time works in favor of the growth investor because the exponentiality of long-term growth leads the way to excess returns.

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#### Appendix: «Justified PE» calculations<sup>1</sup>

**Table 1: PE calculations. “Total shares” include the reinvestment of all dividends into KO shares.**

	Stock Price	EPS	Dividends	Original shares	Total shares	Investment Value		Stock Price	EPS	Dividends	Original shares	Total shares	Investment Value
							1966	89.88	3.12	1.90	48	438	39 358
1919	40.00			1	1.0	40	1967	132.50	3.52	2.10	48	445	58 944
1920	19.50	2.61	2.00	1	1.1	22	1968	71.50	1.91	1.16	96	904	64 649
1921	43.25	3.29	1.00	1	1.1	49	1969	82.25	2.10	1.32	96	919	75 562
1922	79.63	11.14	5.50	1	1.2	96	1970	84.75	2.47	1.44	96	934	79 182
1923	77.88	7.66	7.25	1	1.3	103	1971	122.00	2.81	1.58	96	946	115 461
1924	80.00	10.00	7.00	1	1.4	115	1972	148.50	3.18	1.64	96	957	142 093
1925	153.63	14.47	7.00	1	1.5	230	1973	126.50	3.60	1.80	96	970	122 764
1926	172.25	16.50	7.00	1	1.6	269	1974	53.00	3.27	2.08	96	1 009	53 453
1927	127.88	9.16	5.00	2	3.2	415	1975	82.25	3.99	2.30	96	1 037	85 273
1928	171.50	10.19	5.75	2	3.4	575	1976	79.00	4.76	2.65	96	1 072	84 651
1929	133.75	10.25	4.00	2	3.5	472	1977	37.25	2.67	1.54	192	2 232	83 130
1930	146.00	11.15	6.00	2	3.7	546	1978	43.88	3.03	1.74	192	2 320	101 798
1931	107.00	11.82	8.00	2	4.1	440	1979	34.50	3.40	1.96	192	2 452	84 593
1932	75.00	8.68	7.75	2	4.7	350	1980	33.38	3.42	2.16	192	2 611	87 131
1933	96.00	8.82	6.25	2	5.1	488	1981	34.75	3.90	2.32	192	2 785	96 778
1934	161.50	12.49	7.00	2	5.4	866	1982	52.00	3.77	2.48	192	2 918	151 725
1935	88.75	3.48	2.25	8	22.1	1 962	1983	53.50	4.10	2.68	192	3 064	163 922
1936	123.75	4.66	4.00	8	22.9	2 835	1984	62.38	4.81	2.76	192	3 200	199 571
1937	114.00	5.73	4.50	8	23.9	2 724	1985	84.50	5.61	2.96	192	3 312	279 831
1938	132.25	5.95	4.50	8	24.8	3 278	1986	37.75	2.43	1.04	576	10 209	385 372
1939	117.50	6.82	5.00	8	25.9	3 047	1987	38.13	2.46	1.12	576	10 508	400 633
1940	105.75	6.77	5.00	8	27.2	2 882	1988	44.63	2.93	1.88	576	10 951	488 694
1941	78.00	6.78	5.00	8	29.1	2 272	1989	77.25	5.05	1.36	576	11 144	860 868
1942	87.50	5.37	4.00	8	30.6	2 675	1990	46.50	2.04	0.80	1 152	22 671	1 054 215
1943	113.50	5.94	4.00	8	31.7	3 602	1991	80.25	2.43	0.96	1 152	22 942	1 841 136
1944	136.00	5.65	4.00	8	32.7	4 453	1992	41.88	1.27	0.56	2 304	46 499	1 947 130
1945	179.50	5.68	4.00	8	33.5	6 019	1993	44.63	1.68	0.68	2 304	47 207	2 106 620
1946	140.00	5.74	4.00	8	34.6	4 838	1994	51.50	2.00	0.78	2 304	47 922	2 467 991
1947	182.00	7.60	5.00	8	35.6	6 473	1995	74.25	2.38	0.88	2 304	48 490	3 600 392
1948	134.25	8.22	5.00	8	37.0	4 962	1996	52.63	1.41	0.50	4 608	97 902	5 152 076
1949	166.00	8.76	6.00	8	38.4	6 368	1997	66.69	1.67	0.56	4 608	98 724	6 583 643
1950	116.00	7.44	5.00	8	41.6	4 822	1998	67.00	1.43	0.60	4 608	99 608	6 673 729
1951	102.50	6.11	5.00	8	43.6	4 469	1999	58.25	0.98	0.64	4 608	100 702	5 865 909
1952	109.75	6.38	5.00	8	45.6	5 003	2000	60.94	0.88	0.68	4 608	101 826	6 205 275
1953	111.00	6.60	5.00	8	47.6	5 288	2001	47.15	1.60	0.72	4 608	103 381	4 874 410
1954	113.25	6.08	5.00	8	49.7	5 634	2002	43.84	1.23	0.80	4 608	105 267	4 614 924
1955	124.75	6.44	5.00	8	51.7	6 454	2003	50.75	1.78	0.88	4 608	107 093	5 434 957
1956	98.50	6.89	5.00	8	54.4	5 355	2004	41.64	2.01	1.00	4 608	109 665	4 566 435
1957	98.00	7.07	5.00	8	57.1	5 600	2005	40.31	2.06	1.12	4 608	112 712	4 543 405
1958	130.50	7.10	5.00	8	59.3	7 742	2006	48.25	2.19	1.24	4 608	115 608	5 578 098
1959	150.00	7.87	6.50	8	61.9	9 285	2007	61.37	2.58	1.36	4 608	118 170	7 252 105
1960	80.38	2.86	2.40	24	191.2	15 371	2008	45.27	2.51	1.52	4 608	122 138	5 529 184
1961	103.50	3.07	2.40	24	195.7	20 252	2009	57.00	2.96	1.64	4 608	125 652	7 162 168
1962	85.25	3.38	2.40	24	201.2	17 151	2010	65.77	5.15	1.76	4 608	129 015	8 485 284
1963	115.63	3.77	2.70	24	205.9	23 805	2011	69.97	3.79	1.88	4 608	132 481	9 269 692
1964	140.75	4.60	3.00	24	210.3	29 595	2012	36.25	2.02	1.02	9 216	272 417	9 875 130
1965	86.00	2.66	1.70	48	428.9	36 881	2013	41.31	1.95	1.12	9 216	279 803	11 558 669

Source: The Coca-Cola company / Comgest.

<sup>1</sup> Our figures occasionally differ slightly from those published by the company due to rounding numbers and the fact that, for consistency reasons, we have applied the same calculation principles throughout the 1919-2013 period.

ERIC VORAVONG, CFA

## THE LONG-TERM GROWTH CONUNDRUM

### - Dividend Discount Model

$$Present Value = \sum_{i=1}^n \frac{Dividend_i}{(1+r)^i} + \frac{Terminal Value_n}{(1+r)^n} = \sum_{i=1}^n \frac{Dividend_i}{(1,08)^i} + \frac{380,713}{(1,08)^{94}}$$

$$Present Value = 469.9 + 274.6 = \mathbf{\$744.5}$$

The EPS was \$2.61 in 1920. So at an IPO price of \$40, the PE forward was 15.3x. It would have been 285x at \$744.5.

$$Justified PE = 744.5 / 2.61 = \mathbf{285x}$$

### - Total Shareholder Value

$$Present Value = \frac{Future Value}{(1+r)^{94}} = \frac{11,558,669}{1,08^{94}} = \mathbf{\$8,338.2}$$

With all dividends reinvested each year, the investor would have owned 279,803 shares worth \$11,558MM in total at the end of 2013.

At a discount rate of 8%, this equate to a present value in 1919 of \$8,338.

$$Justified PE = 8,338.2 / 2.61 = \mathbf{3,195x}$$

ERIC VORAVONG, CFA

**THE LONG-TERM GROWTH CONUNDRUM**

**Eric Voravong, CFA**  
ESG Analyst / Portfolio Manager

Eric Voravong joined Comgest in 2017 and is an ESG Analyst and Portfolio Manager responsible for ESG coverage of Asian markets. He meets and engages with company management alongside the firm's investment Analysts as well as preparing in-depth ESG reports. In 2008, prior to Comgest, Eric established an independent investment consultancy and regularly collaborated with Comgest, particularly on several key projects involving ESG integration. Eric started his career in corporate banking in 1989 at Banque Paribas where he worked for 15 years, starting as a Risk Analyst then moving on to roles including Account Manager, Credit Officer and Portfolio Manager. He worked in both Paris and Los Angeles before moving to London where he joined the Equity Research team focusing on telecom and technology companies. Eric then joined Paris-based ADI Alternative Investments as a Senior Analyst in their research team before establishing his above-mentioned consultancy firm. He holds a Diploma from the EM Lyon Business School and is a CFA® charterholder.

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**FOR PROFESSIONAL/QUALIFIED INVESTORS ONLY**

Data in this document is as at 30th of June 2014, unless otherwise stated.

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