

Research article

DOI: <https://doi.org/10.48554/SDEE.2021.2.1>

TOTAL RETURN AND TOTAL RETURN FOR ALL SHAREHOLDERS: DIFFERENCES OF SUSTAINABLY DEVELOPING COMPANIES IN THE S&P100

Pablo Fernandez^{1*}, Eduardo de Apellaniz¹

¹ IESE Business School (University of Navarra), Madrid, Spain, pfernandez@iese.edu,
apellaniz25edu@gmail.com

* Corresponding author: pfernandez@iese.edu

Abstract

The purpose of the study is to discover which indicators should be directed to shareholders who can reinvest dividends to acquire additional shares, buy back shares and increase their capital. To solve this problem, a method of comparing indicators, such as Total Return (TR) and Total Return for All Shareholders (TRAS), is used. TR, also called ‘return including dividends’ and ‘Total Index Return’, provides the theoretical return of a share – assuming that dividends are reinvested to purchase additional shares. TRAS is the return that all the shareholders of a company have in a given period. It is also the return of a shareholder that always had a constant proportion (i.e. 0.1%) of the shares. It takes into account not only the dividends but also the share repurchases and the capital increases. We calculated both returns for the S&P100 companies during December 2004–April 2020. For 18 companies, annual TR exceeded annual TRAS in more than 1% (i.e. Blackrock 3.9%, Microsoft 2%). For 19 companies, annual TRAS exceeded annual TR in more than 1% (i.e. Citigroup 7.8%, Altria 5.4%). Most databases provide TR valid for a shareholder that reinvested 100% of the dividends, did not sell any share in repurchases and did not subscribe any new share when the company increased capital.

Keywords: total return, total return for all shareholders, dividend reinvestment, share repurchase, shareholder capital increase.

Citation: Fernandez, P., Apellaniz, E., 2021. Total return and total return for all shareholders: differences of sustainably developing companies in the S&P100. *Sustainable Development and Engineering Economics* 2, 1. <https://doi.org/10.48554/SDEE.2021.2.1>



This work is licensed under a [CC BY-NC 4.0](https://creativecommons.org/licenses/by-nc/4.0/)

© Fernandez, P., Apellaniz, E., 2021. Published by Peter the Great St. Petersburg Polytechnic University

Научная статья

УДК 336.6

DOI: <https://doi.org/10.48554/SDEE.2021.2.1>

ОБЩАЯ ПРИБЫЛЬ И ОБЩАЯ ДОХОДНОСТЬ ДЛЯ ВСЕХ АКЦИОНЕРОВ: РАЗНИЦА ДЛЯ УСТОЙЧИВО РАЗВИВАЮЩИХСЯ КОМПАНИЙ В S&P100

Пабло Фернандез^{1*}, Эдуардо де Апелланиз¹

¹ Бизнес-школа IESE Университета Наварры, Мадрид, Испания, pfernandez@iese.edu,
apellaniz25edu@gmail.com

*Автор, ответственный за переписку: pfernandez@iese.edu

Аннотация

Цель исследования заключается в попытке выяснить, на какие показатели следует ориентироваться акционерам, которые могут реинвестировать дивиденды для приобретения дополнительных акций, выкупать акции и увеличивать свой капитал. Для решения поставленной задачи применяется метод сравнения таких показателей, как общая прибыль (TR) и общая доходность для всех акционеров (TRAS). Общая прибыль (TR), также называемая «возврат с учетом дивидендов» и «полное возвращение индекса», обеспечивает теоретический возврат акций, предполагая, что дивиденды повторно инвестируются для приобретения дополнительных акций. Общая доходность для всех акционеров (TRAS) – это доходность, которую имели все акционеры компании за определенный период. Это также возвращение для акционера, который всегда имел постоянную долю (т. е. 0.1% акций). Он учитывает не только дивиденды, но и выкуп акций, и увеличение капитала. Мы рассчитываем обе доходности для компаний S&P100 в период с декабря 2004 года по апрель 2020 года. Для 18 компаний годовые TR превысили годовые TRAS более чем на 1% (т. е. Blackrock 3.9%, Microsoft 2%). Для 19 компаний годовая TRAS превысила годовую TR более чем на 1% (т. е. Citigroup 7.8%, Altria 5.4%). Большинство баз данных предоставляют общую прибыль (TR), действительную для акционера, который реинвестировал 100% дивидендов, не продавал какую-либо долю в выкупе и не подписывал какую-либо новую акцию, когда компания увеличивала капитал.

Ключевые слова: общая прибыль, общая доходность для всех акционеров, реинвестирование дивидендов, выкуп акций, увеличение капитала акционеров.

Цитирование: Фернандез, П., Апелланиз, Э., 2021. Общая прибыль и общая доходность для всех акционеров: разница для устойчиво развивающихся компаний в S&P100. Sustainable Development and Engineering Economics 2, 1.

<https://doi.org/10.48554/SDEE.2021.2.1>



Эта работа распространяется под лицензией [CC BY-NC 4.0](https://creativecommons.org/licenses/by-nc/4.0/)

© Фернандез, П., Апелланиз, Э., 2021. Издатель: Санкт-Петербургский политехнический университет Петра Великого

1. Introduction

The share value is the present value of the expected equity cash flows, and the two main components of equity cash flows are dividends and share repurchases (Fernandez, 2013).

The all-shareholder return is the return that all the shareholders of a company had in a given period and is equal to the hypothetical return of a unique shareholder of the company. It is also the return of a shareholder that always had a constant proportion (i.e. 0.2%) of the shares. The all-period shareholder return is the return that a shareholder who maintained the shares for the whole period had. There are many all-period shareholder returns depending on the actions of the shareholder during the period, such as fraction of dividends reinvested, fraction of shares sold when the company repurchased them and number of shares subscribed when the company increased capital. Most databases provide a special all-period shareholder return valid for a shareholder that reinvested 100% of the dividends, did not sell any shares in repurchases and did not subscribe any new share when the company increased capital. In many situations, there are substantial differences among these returns (Fernandez, 2012).

Since 1997, the total amount of buybacks has exceeded the cash dividends paid by U.S. firms (Fernandez, 2013). The proportion of dividend-paying companies decreased to 43% in 2018 from 78% in 1980, while the proportion of companies with share buybacks increased to 53% from 28% during the same period. The increased use of share repurchases is mainly driven by some key advantages of this method, including tax benefits and financial flexibility.

The purpose of the study is to ascertain which indicators should be directed to shareholders who can reinvest dividends to acquire additional shares, buy back shares and increase their capital. To solve this problem, a method of comparing indicators, such as Total Return (TR) and Total Return for All Shareholders (TRAS), is used. This approach allows shareholders to assess their real returns on shares more accurately.

The classical total return index is adjusted according to the amount of dividends paid in by index constituent companies. Total shareholder return (TSR) is a measure of financial performance, indicating the total amount an investor reaps from an investment – specifically, equities or shares of stock. Whichever way it is calculated, TSR means the same thing: the sum total of what a stock has returned to those who have invested in it.

When we analyse companies, TRAS provides the most comprehensive average of individual returns. It could also be the return with a unique shareholder as well as the return of a shareholder that always holds a constant percentage of the outstanding shares.

If we think of ‘TRAS’ as providing an average return for all shareholders, then ‘TR’ calculates an Internal Rate of Return (IRR) for a subset of shareholders. We aim to determine if there is a way to calculate an IRR for other shareholders and assume that if $TR > TRAS$, then the returns for these ‘other’ shareholders are $< TRAS$ return.

2. Literature review

Repurchasing firms experience a significant reduction in the systematic risk and cost of capital relative to non-repurchasing firms. Further, consistent with the free cash flow hypothesis, Grullon and Michaely (2004) found that the market reaction to share-repurchase announcements is more positive among firms that are likelier to overinvest.

Ikenberry, Lakonishok and Vermaelen (Ikenberry et al., 1995) examined long-run firm performance following open market share-repurchase announcements, 1980–1990. For repurchases announced by ‘glamour’ stocks, where undervaluation is less likely to be an important motive, no positive drift in abnormal returns is observed. Thus, at least with respect to value stocks, the market errs in its initial response and appears to ignore much of the information conveyed through repurchases announcements.

Forecasters often exaggerate the reliability of their forecasts and trace this exaggeration to the illusion of validity. Fisher and Statman (2020) discussed five cognitive biases that underlie the illusion of validity: overconfidence, confirmation, representativeness, anchoring and hindsight. Fisher and Statman used forecasts based on P/E ratios and dividend yields to illustrate biases and offer remedies.

A simplified stock valuation model based on the general principle that the price of a common stock equals the present value of its future dividends, the H-model is more practical than the general dividend discount model, yet more realistic than the constant growth rate model. The H-model assumes that a firm’s growth rate decreases (or increases) in a linear fashion from an above-normal (or below-normal) rate to a normal, long-term rate. Given estimates of these two growth rates, the length of the period of above-normal growth, and the discount rate, an analyst may use the H-model to solve for current stock price (Fuller et al., 1984).

However, as stock repurchases and dividends serve the same basic economic function, the rapid growth of repurchases greatly contrasts this and is perplexing. Part of the explanation is that, because repurchases are taxed as capital gains and dividends as ordinary income, repurchases are a more tax-efficient way of distributing excess capital. Perhaps even more important than their tax treatment is the flexibility that (at least) open market repurchases provide corporate managers-flexibility to make small adjustments in capital structure to exploit (or correct) perceived undervaluation of the firm’s shares and possibly even to increase the liquidity of the stock, which could be particularly valuable in bear markets (Grullon and Ikenberry, 2000).

Guay and Harford (2000) hypothesised that firms choose dividend increases to distribute relatively permanent cash-flow shocks and repurchases to distribute more transient shocks. As predicted, Guay and Harford found that post-shock cash flows of dividend-increasing firms exhibit less reversion to pre-shock levels compared with repurchasing firms.

Kahle (2002) examined how stock options affect the decision to repurchase shares. Once the decision to repurchase is made, the amount repurchased is positively related to total options exercisable by all employees but independent of managerial options. These results are consistent with managers repurchasing both to maximise their own wealth and to fund employee stock option exercises. The market appears to recognise this motive, however, and reacts less positively to repurchases announced by firms with high levels of nonmanagerial options.

Lease et al. (1999) acknowledged the irrelevance of dividend policy in a world with perfect capital markets; they stress how market imperfections such as taxes, imperfect information and agency issues can alter the dividend irrelevance conclusion.

The dividend discount model, the most widely used method of common stock valuation, equates a firm’s stock price to the discounted value of its expected future dividends. The trinomial dividend valuation model (Yao, 1997) provides a new way to estimate the value of a firm in these circumstances. The results show that our model, in general, produces better price estimates than the Hurley and Johnson model (Hurley et al., 1994).

Hurley (2013) presented models of equity valuation in which future dividends are assumed to follow a generalised Bernoulli process consistent with the actual dividend payout behaviour of many firms. This uncertain dividend stream induces a probability distribution of the present value.

Bezawada and Tati (2017) set our objective to determine the impact of dividend policy on shareholders' wealth in the Indian electrical equipment manufacturing industry. The results indicate that there is a negative non-linear association between the market value of a share and dividend yields.

Research by Kien and Chen (2020) aimed to investigate the relationship between the ownership structure and dividend policy of Vietnamese listed companies. The empirical findings show that government-controlled companies, companies with high concentrated ownership and companies with recent right issue activities would have higher dividend payments.

The results of research by Hassan et al. (2013) showed that the tax shield has no significant relation to the dividend payout ratio, but mostly dividend policy is due to the size of the firm and its profitability.

To come to a conclusion on management's contribution to value creation and relative increase in shareholder wealth, it is necessary to use appropriate performance measures. Hence, the objective of research by Cupic and Todorovic (2011) was to analyse TSR as a measure of the value created due to managers' decisions. The remaining structure is organised as follows. The introduction is followed by an analysis of TSR, its drawbacks and the correlation between TSR and Total Business Return. After presenting alternatives to TSR, the conclusion closes the paper.

Burgman and Van Clieaf (2012) scrutinised the complexities associated with using TSR as a means to measure gains or losses in shareholder wealth and also as a frame of reference for long-term incentive compensation and proxy voting by shareholders. The research concludes that the quality of TSR can be accurately interpreted by introducing various metrics, such as economic profit (EP), return on invested capital (ROIC) and future value (FV).

The research by Pandya (2014) scrutinised the correlation of TSR with various other metrics, such as created shareholder value (CSV), market value added (MVA) and EP, in the context of the Indian banking system. The study reveals that CSV, together with MVA and EP, can explain the variations of total shareholder value in Indian banks.

Pandya (2014) evaluated the correlation of TSR and excess return with accounting measures. The research concluded that, on average, pharmaceutical companies have generated positive TSR and excess return, thus significantly benefiting shareholders.

The study by Snyders (2017) sampled companies listed in the Johannesburg Stock Exchange that had been growing through acquisitions during the period 2007–2016 to scrutinise whether such businesses have demonstrated better TSR figures than companies employing organic or mixed growth strategies. Analysis reveals that mergers and acquisitions events ultimately lead to the value destruction of businesses.

Combined with a three-year horizon, TSR has the potential to be dangerous – payouts to executives may reward short-to mid-term stock price volatility rather than sustained long-term TSR performance. The analysis by Hosken and Makridis (2015) raised questions about the appropriateness of 3 years as a performance period for relative TSR plans and suggested a few possibilities for action.

The research by Murekefu and Ouma (2012) sought to establish the relationship between dividend payout and firm performance among listed firms on the Nairobi Securities Exchange. Regression analysis was carried out to establish the relationship between dividend payouts and firm performance. The findings indicated that dividend payout was a major factor affecting firm performance.

The study by Osamwonyi and Lola-Ebueku (2016) examined the effect of dividend policy on firm's returns using the data of 17 manufacturing firms listed on the Nigerian Stock Exchange. One lagged dividend payout (previous dividend payout), cash flow and leverage have positive but not significant influence on Earnings Per Share (EPS), while the impact of size is negative and not significant.

Share repurchases, rather than dividend payments, are increasingly becoming the globally favoured payout method. This has prompted a renewed interest in the field and raises questions about the actual motivation for share repurchases and whether companies are now repurchasing shares in preference to investing in future growth. Share repurchases were found to be a popular payout method, especially in the more recent periods covered in the study. Aspects unique to the South African regulatory environment, however, resulted in the South African share-repurchase experience not fully mirroring current global practices. The main constraint in the South African share-repurchase environment is that comprehensive, actual time-based share-repurchase data are not available (Wesson et al., 2015).

However, if we believe that TRAS provides an average return for all shareholders, and TR calculates an IRR for a subset of shareholders, then we believe that there is a way to calculate an IRR for other shareholders. This problem has not been sufficiently studied by many researchers.

3. Materials and Methods

3.1 Difference between Total Return (TR) and Total Return for All Shareholders (TRAS)

The impact of a dividend is significant on TR indices. ‘Total return’ is the result of reinvesting all dividends back into the index or portfolio. In the short term, the contribution of dividends to TR performance may not be visible. Over time, however, the difference in accumulated wealth is significant due to the reinvestment of income.

The level of the TR index is adjusted according to the amount of dividends paid in by index constituent companies. When a company issues a dividend, the price of the equity drops in the exact amount of the per-share dividend amount. Leaving aside subsequent market movements of the equity price, the direct impact of a dividend on an index is a drop in the price of the index. However, the TR index is adjusted for the issuance of dividends by reinvesting them. In most cases, Refinitiv will reinvest the gross dividend amount on the ex-date in the TR indices (there are some exceptions to this rule due to local market conventions).

The TR index is computed as follows:

$$\text{Index Price}_t = \frac{\sum_{i=1}^n p_{i,t} q_{i,t} r_{i,t} + \text{Div}_{i,t} q_{i,t} r_{i,t}}{\text{Divisor}_t}, \quad (1)$$

where $p_{i,t}$ – price of equity $i = \overline{1, n}$ at time $t = \overline{0, T}$;

n – the number of equities in the index;

$q_{i,t}$ – shares held in index for equity i at time t ;

$r_{i,t}$ – exchange rate from local currency to index currency for equity i at time t ;

$\text{DIV}_{i,t}$ – per-share dividend on ex-date¹.

All quantities in the equation above are end-of-day quantities. The numerator is computed as per the ex-date for any dividends. The divisor is also adjusted for TR indices on the day following the dividend ex-date. This is done to ensure that the index does not fall back down to previous levels (prior to dividend ex-date). This adjustment is done by calculating an adjusted market cap

¹ Refinitiv Equity Indices, Corporate Action Methodology, April 2020. Refinitiv Limited. https://www.refinitiv.com/content/dam/marketing/en_us/documents/methodology/corporate-actions-methodology.pdf

for the TR index immediately after the dividend ex-date. The adjusted market cap is the price-only market cap as on the dividend ex-date (i.e. excluding index dividend). Once this is divided by the TR index value as on dividend ex-date, we get an adjusted divisor, which is used for calculations from the next day onwards.

TSR is a measure of financial performance, indicating the total amount an investor reaps from an investment – specifically, equities or shares of stock. To arrive at its total, usually expressed as a percentage, TSR factors in capital gains and dividends from a stock might also include special distributions, stock splits and warrants. Whichever way it is calculated, TSR means the same thing: the sum total of what a stock has returned to those who have invested in it.

TSR is most useful when measured over time, as it shows the long-term value of an investment, the most accurate metric for gauging success for most individual investors.

TSR is a good gauge of an investment’s long-term value, but it is limited to past performance, requires an investment to generate cash flows and can be sensitive to stock market volatility.

TSR is calculated as the overall appreciation in the stock’s price per share plus any dividends paid by the company during a particular measured interval; this sum is then divided by the initial purchase price of the stock to arrive at the TSR²:

$$\text{TSR} = \frac{(\text{Current Price} - \text{Purchase Price}) + \text{Dividends}}{\text{Purchase Price}}, \quad (2)$$

The TR, also called ‘return including dividends’ and ‘Total Index Return’ provides the theoretical return of a share, assuming that dividends are reinvested to purchase additional shares. TRAS is the return that all the shareholders of a company had in a period. It is also the return of a shareholder that always had a constant proportion (i.e. 0.1%) of the shares. It takes into account not only the dividends, but also the share repurchases and the capital increases (Table 1).

Table 1. Different assumptions in Total Return (TR) and Total Return for All Shareholders (TRAS) calculations

	TR	TRAS
Dividend payment	Dividends are reinvested to purchase additional shares.	Dividends are collected. No purchase of additional shares.
Share repurchases	Nothing happens.	Shares are sold to keep a constant proportion of the shares of the company.
Capital increase, Rights offering	Rights are sold and the money obtained is reinvested to purchase additional shares.	Rights are sold and the money obtained is reinvested to purchase additional shares.
Equity offering at market price	Nothing happens.	Buy new shares to keep a constant proportion of the company shares.

² Investopedia. <https://www.investopedia.com/terms/t/tsr.asp>

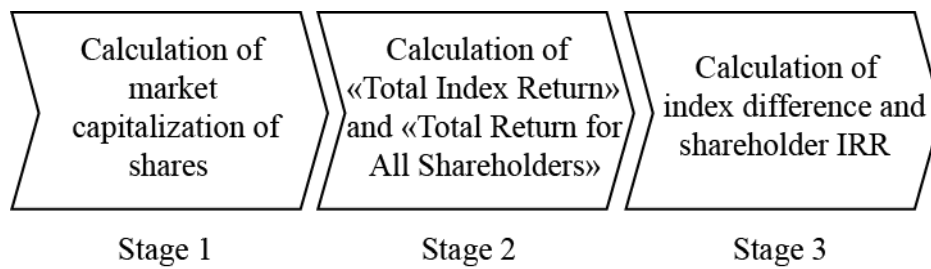


Figure 1. Number of steps required for the study

Table 2. Company that repurchases shares and does not pay dividends
(In year 1: repurchase of 60 shares at \$5/share)

No dividends	Year			IRR
	0	1	2	
Number of shares	100	40	40	
Price / share	5	5	10	
Market capitalisation	500	200	400	
TR	-5	0	10	41.4%
TRAS	-500	300	400	24.3%

Figure 1 shows the number of steps required for the study.

Table 2 presents an easy example: A company that repurchased shares in year 1. The TRAS (TRAS = 24.3%) is substantially lower than the TR (TR = 41.4%), the annual return of a shareholder that maintained a share both years (41.4%).

3.2. Definitions provided by Datastream

Data about indexes TR and TSR (TRAS) is taken from the Datastream site.³

PRICE – Datatype (P) represents the official closing price. This is the default datatype for all equities. The prices taken at the close of the market are stored each day. These stored prices are adjusted for subsequent capital actions, and this adjusted figure then becomes the default price offered on all research programmes. The actual historical prices can be accessed using the unadjusted price datatype (UP). Prices are generally based on ‘last trade’ or an official price fixing. For stocks that are listed on more than one exchange within a country, default prices are taken from the primary exchange of that country (note that this is not necessarily the ‘home’ exchange of the stock). For Japan and Germany, prices from the secondary markets can be obtained by qualifying the price datatype with an exchange code.

Total return index – a return index is available for individual equities and unit trusts. This shows a theoretical growth in the value of a share holding over a specified period, assuming that dividends are reinvested to purchase additional units of an equity or unit trust at the closing price applicable on the ex-dividend date.

³ Trading solutions: refinitiv. <https://solutions.refinitiv.com/datastream-macroeconomic-analysis/>

Table 3. TR and TRAS of the companies in the S&P100 during December 2004 – April 2020

	2004–2020	Annual return 2004–2020			Annual return 2014–2020		
		TR	TRAS	Difference	TR	TRAS	Difference
1	BLACKROCK	15.6%	11.7%	−3.9%	9.3%	9.2%	−0.1%
2	HOME DEPOT	14.0%	11.3%	−2.7%	17.5%	17.7%	0.2%
3	MICROSOFT	15.6%	13.6%	−2.0%	31.5%	30.9%	−0.6%
4	AMGEN	10.4%	8.5%	−2.0%	10.8%	9.8%	−1.0%
5	SALESFORCE.COM	26.8%	24.9%	−1.9%	20.7%	20.2%	−0.6%
6	BOOKING HOLDINGS	31.0%	29.2%	−1.8%	5.0%	6.2%	1.2%
7	LOWE’S COMPANIES	10.5%	8.7%	−1.8%	10.2%	10.2%	0.0%
8	UNITEDHEALTH GROUP	14.3%	12.5%	−1.8%	23.9%	24.1%	0.1%
9	ELI LILLY	10.6%	8.9%	−1.7%	19.2%	18.5%	−0.7%
10	ABBOTT LAB	12.5%	10.8%	−1.7%	16.8%	17.5%	0.7%
11	ALLSTATE ORD SHS	7.1%	5.5%	−1.6%	9.2%	9.0%	−0.2%
12	INTEL	9.3%	7.8%	−1.5%	12.9%	12.3%	−0.6%
13	ALPHABET A	18.8%	17.3%	−1.4%	19.1%	19.0%	−0.1%
14	TARGET	7.4%	6.0%	−1.3%	10.7%	9.3%	−1.4%
15	TEXAS INSTRUMENTS	12.9%	11.6%	−1.3%	18.7%	18.8%	0.2%
16	NVIDIA	27.3%	26.1%	−1.2%	66.4%	63.5%	−3.0%
17	WALMART	7.9%	6.8%	−1.1%	9.4%	8.3%	−1.0%
18	LOCKHEED MARTIN	16.8%	15.8%	−1.0%	17.1%	17.2%	0.1%
19	THERMO FISHER SCIENTIFIC	17.3%	16.5%	−0.8%	20.6%	20.5%	−0.1%
20	QUALCOMM	6.5%	5.7%	−0.7%	4.7%	2.5%	−2.2%
21	VERIZON COM	8.2%	7.5%	−0.7%	8.9%	8.9%	0.0%
22	NETFLIX	42.9%	42.2%	−0.7%	49.7%	49.4%	−0.3%
23	ADOBE (NAS)	17.1%	16.5%	−0.6%	34.5%	34.5%	0.0%
24	PFIZER	6.5%	5.9%	−0.6%	7.8%	8.2%	0.4%
25	CISCO SYSTEMS	7.1%	6.5%	−0.6%	11.8%	12.7%	0.9%
26	MEDTRONIC	6.5%	5.9%	−0.6%	8.0%	8.2%	0.1%
27	BIOGEN	10.8%	10.2%	−0.6%	−1.0%	−1.4%	−0.5%
28	JOHNSON & JOHNSON	8.8%	8.2%	−0.6%	9.9%	9.8%	−0.1%
29	COSTCO WHOLESALE	15.0%	14.5%	−0.5%	18.2%	18.0%	−0.1%
30	BRISTOL MYERS SQUIBB	10.0%	9.4%	−0.5%	3.3%	3.6%	0.3%
31	BANK OF NEW YORK MELLON	2.5%	2.1%	−0.5%	0.6%	1.7%	1.1%
32	PROCTER & GAMBLE	8.2%	7.7%	−0.5%	8.4%	7.7%	−0.7%
33	AMERICAN TOWER	19.3%	18.9%	−0.4%	20.2%	20.1%	−0.1%
34	NEXTERA ENERGY	16.2%	15.9%	−0.3%	18.8%	18.8%	0.0%
35	AT&T	6.7%	6.5%	−0.3%	4.0%	4.4%	0.5%
36	NIKE ‘B’	15.8%	15.5%	−0.3%	13.1%	13.1%	0.0%
37	DANAHER	14.4%	14.2%	−0.2%	19.6%	19.3%	−0.3%
38	STARBUCKS	12.1%	11.9%	−0.2%	14.4%	14.9%	0.5%
39	PEPSICO	9.2%	9.0%	−0.2%	9.6%	9.6%	−0.1%
40	SOUTHERN	8.4%	8.3%	−0.1%	7.6%	7.3%	−0.2%
41	JP MORGAN CHASE & CO.	8.9%	8.8%	−0.1%	11.4%	12.5%	1.1%
42	AMERICAN EXPRESS	5.7%	5.6%	−0.1%	1.3%	0.8%	−0.5%
43	WALT DISNEY	10.8%	10.7%	−0.1%	4.0%	4.1%	0.1%
44	ACCENTURE CLASS A	15.4%	15.4%	−0.1%	16.8%	16.9%	0.0%
45	COMCAST A	9.9%	9.8%	0.0%	7.0%	7.5%	0.4%
46	APPLE	32.4%	32.3%	0.0%	22.1%	20.9%	−1.2%

Table 3 (continued)

	2004–2020	Annual return 2004–2020			Annual return 2014–2020		
		TR	TRAS	Difference	TR	TRAS	Difference
47	CVS HEALTH	8.4%	8.4%	0.0%	−5.7%	−6.1%	−0.4%
48	MERCK & COMPANY	10.1%	10.2%	0.1%	9.7%	9.5%	−0.2%
49	3M	6.8%	6.9%	0.1%	1.2%	1.8%	0.5%
50	UNITED PARCEL SER. ‘B’	3.5%	3.6%	0.1%	0.1%	0.2%	0.1%
51	ORACLE	10.2%	10.5%	0.2%	4.8%	4.4%	−0.5%
52	BERKSHIRE HATHAWAY ‘B’	7.9%	8.1%	0.3%	4.2%	4.2%	−0.1%
53	MONDELEZ INT. CL.A	8.1%	8.4%	0.3%	8.8%	8.9%	0.1%
54	COCA COLA	8.5%	8.8%	0.3%	4.9%	4.9%	0.0%
55	RAYTHEON TECHNOLOGIES	7.4%	7.7%	0.4%	1.4%	1.2%	−0.3%
56	WALGREENS BOOTS	2.6%	3.0%	0.4%	−8.1%	−6.6%	1.4%
57	AMAZON.COM	30.0%	30.4%	0.4%	47.6%	47.2%	−0.4%
58	HONEYWELL INTL.	12.4%	12.8%	0.4%	10.0%	10.6%	0.6%
59	CATERPILLAR	8.7%	9.1%	0.4%	8.0%	8.0%	−0.1%
60	FEDEX	2.4%	2.8%	0.4%	−4.8%	−4.4%	0.4%
61	UNION PACIFIC	18.1%	18.6%	0.5%	8.0%	7.2%	−0.8%
62	EXELON	2.7%	3.2%	0.5%	3.5%	3.8%	0.3%
63	COLGATE–PALM.	9.3%	9.9%	0.6%	2.7%	2.7%	−0.1%
64	MCDONALDS	15.5%	16.0%	0.6%	17.0%	17.7%	0.7%
65	EMERSON ELECTRIC	6.3%	6.9%	0.6%	1.7%	1.6%	−0.1%
66	GENERAL DYNAMICS	8.5%	9.1%	0.6%	1.1%	2.1%	0.9%
67	DUKE ENERGY	9.3%	10.0%	0.7%	4.6%	4.5%	−0.1%
68	US BANCORP	3.9%	4.8%	0.8%	−1.3%	−0.2%	1.1%
69	GOLDMAN SACHS GP.	5.1%	6.0%	0.9%	0.5%	0.8%	0.3%
70	GILEAD SCIENCES	17.0%	18.0%	1.0%	0.5%	−0.1%	−0.6%
71	INTERNATIONAL BUS.MCHS.	4.1%	5.3%	1.1%	−0.7%	−0.6%	0.1%
72	CAPITAL ONE FINL.	−0.3%	0.9%	1.2%	−2.6%	−2.2%	0.5%
73	METLIFE	2.4%	3.6%	1.2%	−2.1%	−1.2%	0.9%
74	CHEVRON	7.5%	9.0%	1.6%	0.3%	0.5%	0.2%
75	BOEING	9.3%	11.1%	1.8%	4.1%	7.9%	3.8%
76	MORGAN STANLEY	0.8%	2.7%	1.9%	2.7%	3.2%	0.5%
77	SCHLUMBERGER	−2.4%	−0.4%	2.0%	−23.7%	−22.5%	1.2%
78	FORD MOTOR	−3.8%	−1.3%	2.5%	−13.9%	−12.6%	1.3%
79	CONOCOPHILLIPS	4.8%	7.5%	2.7%	−6.4%	−6.0%	0.4%
80	WELLS FARGO & CO	2.4%	5.2%	2.8%	−8.4%	−6.0%	2.4%
81	GENERAL ELECTRIC	−7.3%	−4.5%	2.8%	−19.3%	−16.4%	2.9%
82	BANK OF AMERICA	−2.2%	0.8%	3.0%	7.5%	8.4%	0.9%
83	EXXON MOBIL	2.2%	5.5%	3.3%	−8.6%	−7.9%	0.7%
84	SIMON PROPERTY GROUP	4.4%	7.9%	3.5%	−13.6%	−12.0%	1.6%
85	ALTRIA GROUP	12.6%	18.0%	5.4%	0.6%	2.2%	1.6%
86	OCCIDENTAL PTL.	−0.1%	5.7%	5.8%	−21.3%	−20.7%	0.6%
87	CITIGROUP	−12.4%	−4.6%	7.8%	−0.5%	1.5%	2.0%
88	AMERICAN INTL.GP.	−20.8%	−10.3%	10.5%	−11.8%	−8.4%	3.4%
	Average	9.6%	9.9%	0.3%	7.8%	8.0%	0.2%
	Maximum	42.9%	42.2%	10.5%	66.4%	63.5%	3.8%
	Minimum	−20.8%	−10.3%	−3.9%	−23.7%	−22.5%	−3.0%

Source: <https://solutions.refinitiv.com/datastream-macroeconomic-analysis/>

4. Results

4.1. TR and TRAS of the companies in the S&P100 during December 2004–April 2020

We analysed 88 companies that were in the S&P100 in April 2020 and had trading records since December 2004.

Table 3 contains the shareholder returns (TR and TRAS) of the 88 companies during the period December 2004–April 30, 2020.

For 18 companies, annual TR exceeded annual TRAS in more than 1% (i.e. Blackrock 3.9%, Microsoft 2%). For 19 companies, annual TRAS exceeded annual TR in more than 1% (i.e. Citigroup 7.8%, Altria 5.4%). We believe that there is a way to calculate the IRRs for some and other shareholders individually.

The returns that we found in databases correspond to investors that hold the shares for the whole period and: a) did not subscribe new shares when the company increased capital and b) reinvested in shares all the dividends.

The most relevant return for an investor is, of course, their own return.

When we analyse companies, TRAS provides the most comprehensive average of individual returns. The return with a unique shareholder and the return of a shareholder that always holds a constant percentage of the outstanding shares were also sufficient.

TR provides the theoretical return of a precise shareholder: one who bought shares and did not receive any cash flow until the end of their investments. The dividends were reinvested to purchase additional shares.

5. Discussion

The results were split almost evenly between the two groups, and their explanations provide greater clarity, intrigue and interest.

One explanation is the ‘Buffett Index,’ however, with one peculiarity: TR does not take into account transaction costs or taxes and is not realistic. TR only exists if the money stays in society’s box and is not distributed. If distributed, the account of (i) income tax (Impuesto sobre la Renta de las Personas Físicas, IRPF) and (ii) repurchase costs must be taken. The only realistic index is TRAS because money comes out of the box, and that is the fact. The other is an estimate, because it does not take into account costs. Buffett has memorable paragraphs about why, when a company is doing well, it is much better for the shareholder that the money remains in society to be distributed.

If we think of TRAS as providing an average return for all shareholders, then TR calculates an IRR for a subset of shareholders. We purport that there is a way to calculate an IRR for other shareholders, and assume that if $TR > TRAS$, then the return for these ‘other’ shareholders is $< TRAS$.

This problem was also investigated by other researchers who obtained the following results.

For repurchases announced by ‘glamour’ stocks, where undervaluation is less likely to be an important motive, no positive drift in abnormal returns was observed (Ikenberry et al., 1995).

Guay and Harford (2000) found that post-shock cash flows of dividend-increasing firms exhibit less reversion to pre-shock levels compared to repurchasing firms.

The results by Bezawada and Tati (2017) indicated that there is a negative non-linear association between the market value of a share and dividend yields.

Burgman and Van Clieaf (2012) concluded that the quality of TSR can be accurately interpreted by introducing various metrics such as EP, ROIC and FV.

The research by Pandya (2014) scrutinised the correlation of TSR with various other metrics, such as CSV, MVA and EP, in the context of the Indian banking system. The study revealed that CSV, together with MVA and EP, can explain the variations of total shareholder value in Indian banks.

The analysis by Hosken and Makridis (2015) raised questions about the appropriateness of 3 years as a performance period for relative TSR plans and suggests a few possibilities for action.

Share repurchases were found to be a popular payout method, especially in the more recent periods covered in the study. Aspects unique to the South African regulatory environment, however, resulted in the South African share-repurchase experience not fully mirroring current global practices. The main constraint in the South African share-repurchase environment is that comprehensive, actual time-based share-repurchase data are not available (Wesson et al., 2015).

However, these authors did not calculate the IRR for subgroups of shareholders. We believe that there is a way to calculate the IRRs for certain shareholders individually.

Thus, emerging capital markets provide new information to investors on how to better manage equity.

6. Conclusion

TR, also called ‘return including dividends’ and ‘Total Index Return’, provides the theoretical return of a share, assuming that dividends are reinvested to purchase additional shares.

TRAS is the return that all the shareholders of a company had in a given period. It is also the return of a shareholder that always had a constant proportion (i.e. 0.1%) of the shares. It takes into account not only the dividends but also the share repurchases and the capital increases.

We calculated both returns for the S&P100 companies during December 2004–April 2020. For 18 companies, annual TR exceeded annual TRAS in more than 1% (i.e. Blackrock 3.9%, Microsoft 2%). For 19 companies, annual TRAS exceeded annual TR in more than 1% (i.e. Citigroup 7.8%, Altria 5.4%).

Most databases provided TR valid for shareholders that reinvested 100% of the dividends, did not sell any shares in repurchases and did not subscribe any new shares when the company increased capital.

References

- Bezawada, B., Tati, R., 2017. Dividend Policy and Firm Valuation—A Study of Indian Electrical Equipment Manufacturing Industry. *TEL* 7, 1233–1243. <http://doi.org/10.4236/tel.2017.75083>
- Burgman, R.J., Van Clieaf, M., 2012. Total Shareholder Return (TSR) and Management Performance: A Performance Metric Appropriately Used or Mostly Abused? *RIJPM* 5(2). <http://doi.org/10.2139/ssrn.2147777>
- Cupic, M., Todorovic, M., 2011. Total Shareholder Return – Decomposition, Internal Equivalent and Alternatives, in book: *Problems of Competitiveness of Contemporary Economies*. University of Niš, Faculty of Economics Editors: Dejan Spasić, Ljiljana Stanković, 379–392.
- Fernandez, P., 2012. All-Shareholder Return, All-Period Returns and Total Index Return. *SSRN Electronic Journal*. <https://dx.doi.org/10.2139/ssrn.2358444>
- Fernandez, P., 2013. Dividends and Share Repurchases. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2215739>
- Fisher, K., Statman, M., 2000. Cognitive Biases in Market Forecasts. *J. Portf. Manag.* Fall, 72–81. <https://doi.org/10.3905/jpm.2000.319785>

- Fuller, R.J., Hsia, C., 1984. A Simplified Common Stock Valuation Model. *Financial Anal. J.* 40, 49–56. <https://doi.org/10.2469/faj.v40.n5.49>
- Grullón, G., Ikenberry, D., 2000. What Do We Know About Stock Repurchases? *JACF* 13(1), 31–51. <https://doi.org/10.1111/j.1745-6622.2000.tb00040.x>
- Grullon, G., Michaely, R., 2004. The Information Content of Share Repurchase Programs. *JOF* 59(2), 651–680. <https://doi.org/10.1111/j.1540-6261.2004.00645.x>
- Guay, J., Harford, J., 2000. The Cash-Flow Permanence and Information Content of Dividend Increases Versus Repurchases. *J. Finan. Econ.* 57(3), 385–415. [http://doi.org/10.1016/S0304-405X\(00\)00062-3](http://doi.org/10.1016/S0304-405X(00)00062-3)
- Hassan, A., Tanveer, M., Siddique, M., Mudasar, M., 2013. Tax Shield and Its Impact on Corporate Dividend Policy: Evidence from Pakistani Stock Market. *Int. J. Bus.* 5(4), 184–188. <http://doi.org/10.4236/ib.2013.54023>
- Hosken, E., Makridis, T., 2015. Total Shareholder Return: How Long is Long Enough? *CFO* 31(8), 20–22.
- Hurley, W., 2013. Calculating First Moments and Confidence Intervals for Generalized Stochastic Dividend Discount Models. *J. Math. Financ.* 3(2), 275–279. <http://doi.org/10.4236/jmf.2013.32027>
- Hurley, W.J., Lewis, D.J., 1994. A Realistic Dividend Valuation Model. *Financial Anal. J.* July/August, 50–54.
- Ikenberry, D., Lakonishok, J., Vermaelen, T., 1995. Market Underreaction to Open Market Share Repurchases. *J. Finan. Econ.* 39(2/3), 181–208. [https://doi.org/10.1016/0304-405X\(95\)00826-Z](https://doi.org/10.1016/0304-405X(95)00826-Z)
- Kahle, K.M., 2002. When a Buyback Isn't a Buyback: Open Market Repurchases and Employee Options. *J. Finan. Econ.* 63, 235–261. [http://doi.org/10.1016/S0304-405X\(01\)00095-2](http://doi.org/10.1016/S0304-405X(01)00095-2)
- Kien, D., Chen, Y., 2020. Ownership Structure Impact on Dividend Policy of Listed Companies on Vietnamese Securities Market. *J. Math. Financ.* 10, 223–241. <http://doi.org/10.4236/jmf.2020.102014>
- Lease, R.C., Kosen, J., Kalay, A., Loewenstein, U., Sarig, O.H., 1999. *Dividend Policy: Its Impact on Firm Value*. Oxford University Press. Available at: <https://econpapers.repec.org/bookchap/oxpobooks/9780875844978.htm>
- Murekefu, T.M., Ouma, O.P., 2012. The Relationship Between Dividend Payout and Firm Performance: A Study of Listed Companies in Kenya. *ESJ* 8(9), 199–215. <https://doi.org/10.19044/esj.2012.v8n9p%25p>
- Osamwonyi, I.O., Lola-Ebueku, I., 2016. Does Dividend Policy Affect Firm Earnings? Empirical Evidence from Nigeria. *Int. J. Financ. Res.* 7(5), 77–86. <https://doi.org/10.5430/ijfr.v7n5p77>
- Pandya, B., 2014. Association of Total Shareholder Return with Other Value Based Measures of Financial Performance: Evidence from Indian Banking Sector. *JEBE* 2(2), 26–44.
- Pandya, B., 2017. Total Shareholder Return and Excess Return: An Analysis of NIFTY Pharma Index Companies. *BVIMSRs J. Manag. Res.* 9(2), 148–156. Available at: <https://www.proquest.com/openview/3cc41ed691f3853210231b4aa-be8ee54/1?pq-origsite=gscholar&cbl=2042844>
- Snyders, T., 2017. *Growing Through Acquisitions: The Long-term Effects of Total Shareholder Return of Companies Listed on the Johannesburg Stock Exchange*. Doctoral Dissertation, University of Pretoria. Available at: <http://hdl.handle.net/2263/64817>
- Wesson, N., Bruwer, B.W., Hamman, W.D., 2015. Share Repurchase and Dividend Payout Behaviour: The South African Experience. *S. Afr. J. Bus. Manag.* 46(3), 43–54. <https://doi.org/10.4102/sajbm.v46i3.100>
- Yao, Y., 1997. A Trinomial Dividend Valuation Model. *J. Portf. Manag.* 23(4), 99–103. <http://doi.org/10.3905/jpm.1997.409618>

СПИСОК ИСТОЧНИКОВ

- Bezawada, B., Tati, R., 2017. Dividend Policy and Firm Valuation—A Study of Indian Electrical Equipment Manufacturing Industry. *TEL* 7, 1233–1243. <http://doi.org/10.4236/tel.2017.75083>
- Burgman, R.J., Van Clieaf, M., 2012. Total Shareholder Return (TSR) and Management Performance: A Performance Metric Appropriately Used or Mostly Abused? *RIJPM* 5(2). <http://doi.org/10.2139/ssrn.2147777>
- Cupic, M., Todorovic, M., 2011. Total Shareholder Return—Decomposition, Internal Equivalent and Alternatives, in book: *Problems of Competitiveness of Contemporary Economies*. University of Niš, Faculty of Economics Editors: Dejan Spasić, Ljiljana Stanković, 379–392.
- Fernandez, P., 2012. All-Shareholder Return, All-Period Returns and Total Index Return. *SSRN Electronic Journal*. <https://dx.doi.org/10.2139/ssrn.2358444>
- Fernandez, P., 2013. Dividends and Share Repurchases. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2215739>
- Fisher, K., Statman, M., 2000. Cognitive Biases in Market Forecasts. *J. Portf. Manag.* Fall, 72–81. <https://doi.org/10.3905/jpm.2000.319785>
- Fuller, R.J., Hsia, C., 1984. A Simplified Common Stock Valuation Model. *Financial Anal. J.* 40, 49–56. <https://doi.org/10.2469/faj.v40.n5.49>

- Grullón, G., Ikenberry, D., 2000. What Do We Know About Stock Repurchases? *JACF* 13(1), 31–51. <https://doi.org/10.1111/j.1745-6622.2000.tb00040.x>
- Grullon, G., Michaely, R., 2004. The Information Content of Share Repurchase Programs. *JOF* 59(2), 651–680. <https://doi.org/10.1111/j.1540-6261.2004.00645.x>
- Guay, J., Harford, J., 2000. The Cash-Flow Permanence and Information Content of Dividend Increases Versus Repurchases. *J. Finan. Econ.* 57(3), 385–415. [http://doi.org/10.1016/S0304-405X\(00\)00062-3](http://doi.org/10.1016/S0304-405X(00)00062-3)
- Hassan, A., Tanveer, M., Siddique, M., Mudasar, M., 2013. Tax Shield and Its Impact on Corporate Dividend Policy: Evidence from Pakistani Stock Market. *Int. J. Bus.* 5(4), 184–188. <http://doi.org/10.4236/ib.2013.54023>
- Hosken, E., Makridis, T., 2015. Total Shareholder Return: How Long is Long Enough? *CFO* 31(8), 20–22.
- Hurley, W., 2013. Calculating First Moments and Confidence Intervals for Generalized Stochastic Dividend Discount Models. *J. Math. Financ.* 3(2), 275–279. <http://doi.org/10.4236/jmf.2013.32027>
- Hurley, W.J., Lewis, D.J., 1994. A Realistic Dividend Valuation Model. *Financial Anal. J.* July/August, 50–54.
- Ikenberry, D., Lakonishok, J., Vermaelen, T., 1995. Market Underreaction to Open Market Share Repurchases. *J. Finan. Econ.* 39(2/3), 181–208. [https://doi.org/10.1016/0304-405X\(95\)00826-Z](https://doi.org/10.1016/0304-405X(95)00826-Z)
- Kahle, K.M., 2002. When a Buyback Isn't a Buyback: Open Market Repurchases and Employee Options. *J. Finan. Econ.* 63, 235–261. [http://doi.org/10.1016/S0304-405X\(01\)00095-2](http://doi.org/10.1016/S0304-405X(01)00095-2)
- Kien, D., Chen, Y., 2020. Ownership Structure Impact on Dividend Policy of Listed Companies on Vietnamese Securities Market. *J. Math. Financ.* 10, 223–241. <http://doi.org/10.4236/jmf.2020.102014>
- Lease, R.C., Kosen, J., Kalay, A., Loewenstein, U., Sarig, O.H., 1999. *Dividend Policy: Its Impact on Firm Value*. Oxford University Press. Available at: <https://econpapers.repec.org/bookchap/oxpobooks/9780875844978.htm>
- Murekefu, T.M., Ouma, O.P., 2012. The Relationship Between Dividend Payout and Firm Performance: A Study of Listed Companies in Kenya. *ESJ* 8(9), 199–215. <https://doi.org/10.19044/esj.2012.v8n9p%25p>
- Osamwonyi, I.O., Lola-Ebueku, I., 2016. Does Dividend Policy Affect Firm Earnings? Empirical Evidence from Nigeria. *Int. J. Financ. Res.* 7(5), 77–86. <https://doi.org/10.5430/ijfr.v7n5p77>
- Pandya, B., 2014. Association of Total Shareholder Return with Other Value Based Measures of Financial Performance: Evidence from Indian Banking Sector. *JEBE* 2(2), 26–44.
- Pandya, B., 2017. Total Shareholder Return and Excess Return: An Analysis of NIFTY Pharma Index Companies. *BVIMSRs J. Manag. Res.* 9(2), 148–156. Available at: <https://www.proquest.com/openview/3cc41ed691f3853210231b4aa-be8ee54/1?pq-origsite=gscholar&cbl=2042844>
- Snyders, T., 2017. *Growing Through Acquisitions: The Long-term Effects of Total Shareholder Return of Companies Listed on the Johannesburg Stock Exchange*. Doctoral Dissertation, University of Pretoria. Available at: <http://hdl.handle.net/2263/64817>
- Wesson, N., Bruwer, B.W., Hamman, W.D., 2015. Share Repurchase and Dividend Payout Behaviour: The South African Experience. *S. Afr. J. Bus. Manag.* 46(3), 43–54. <https://doi.org/10.4102/sajbm.v46i3.100>
- Yao, Y., 1997. A Trinomial Dividend Valuation Model. *J. Portf. Manag.* 23(4), 99–103. <http://doi.org/10.3905/jpm.1997.409618>

The article was submitted 1.05.2021, approved after reviewing 21.06.2021, accepted for publication 1.07.2021.

Статья поступила в редакцию 1.05.2021, одобрена после рецензирования 21.06.2021, принята к публикации 1.07.2021.

About the authors:

1. Pablo Fernandez, PhD Business Economics (Finance), Harvard University position, Full Professor of Finance, IESE Business School (University of Navarra), Madrid, Spain, PFernandez@iese.edu
2. Eduardo de Apellaniz, Research Assistant, IESE Business School (University of Navarra), Madrid, Spain, apellaniz25edu@gmail.com

Информация об авторах:

1. Пабло Фернандез, PhD в области Экономики бизнеса (Финансы), профессор, Бизнес-школа IESE Университета Наварры, Мадрид, Испания, PFernandez@iese.edu
2. Эдуардо де Апелланиз, ассистент, Бизнес-школа IESE Университета Наварры, Мадрид, Испания, apellaniz25edu@gmail.com