



RBC Global  
Asset Management

# A BETTER PROFITABILITY MEASURE

The Merits of CFROI<sup>®</sup>

# Introduction

The analysis of financial statements is a key component of the research process for both fundamental and quantitative bottom-up investment managers. While many managers include traditional profitability metrics such as return on equity, return on assets or profit margin in their analysis, those managers looking for a purely unbiased and objective view of a company often look towards Cash Flow Return on Investment (CFROI®), a proprietary Credit Suisse HOLT® methodology. In the following paper, the CFROI® concept is defined and reasons supporting its useful application in financial analysis are explained.

## What is it?

The best way to think about CFROI® is to consider the scenario of a company evaluating whether or not they should make an investment in their business. Before the company undertakes a specific project, whether it is potentially buying new equipment, investing in land, making an acquisition, expanding into a new business line or building new plants/manufacturing facilities, it would prepare an economic profile. That economic profile would forecast the initial cash outlay of the project, as well as the timing of all future cash flows over the estimated life of the project. From that profile, the company would calculate an internal rate of return (IRR) and compare that to their hurdle rate. In most cases, the hurdle rate is a company's weighted average cost of capital (WACC), which captures both equity and debt financing costs. Generally, a company would not invest in a project unless the IRR exceeded their WACC.

The CFROI® calculation essentially expands on this single-project framework and is the result of the analysis of all the projects of a company. Similar to the internal rate of return calculation, the CFROI® metric is a proxy for a company's economic return as it focuses mainly on cash flows and makes a series of adjustments to ensure that returns are not flattered (or dragged down) by one-off items, accounting practices or financial engineering.

Listed in Exhibit 1 are some of the main adjustments to cash flows that are made in the CFROI® calculation. The one key adjustment that is excluded from the graphic is that surrounding asset lives, which are taken into account for all depreciating assets on the balance sheet, including those that are normally expensed in a traditional accounting framework (e.g. research and development). Once these adjustments are made, what is left is an undistorted, cash-based ratio that captures the economic profitability of a business.

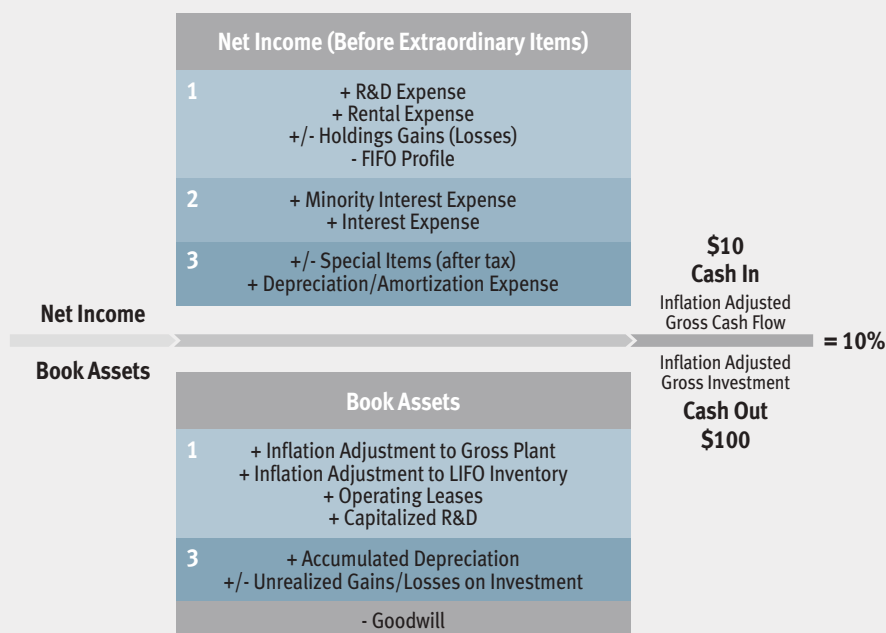
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## EXHIBIT 1

### Calculating CFROI®: From Accounting to Cash

#### Adjustment Types:

- 1 Comparability
- 2 Enterprise Basis
- 3 Recurrent Cash



Source: Credit Suisse HOLT® website ([www.credit-suisse.com/sites/HOLT®](http://www.credit-suisse.com/sites/HOLT®)) as of March 2015

## Why CFROI®

While there are many reasons to consider the use of CFROI® in evaluating a company's business, this paper discusses in detail the four main reasons in support of its use.

### 1. It Emphasizes a Firm's Ability to Generate Cashflow

Corporate financial statements can be full of subjectivity and distortions. The use of accounting figures such as leverage, research and development (R&D) spending, depreciation, off-balance sheet leases, and one time charges can misrepresent the true profitability of a firm depending on the context in which they are used. By manipulating the assumptions going into those calculations, companies can improve their accounting returns, while the true economic return of that company sees no improvement. On the other hand, the key variables that improve not just accounting returns, but also improve the economic return on a company may seem obvious: grow sales, increase margins, and improve asset utilization. CFROI® corrects subjectivity and provides one clean metric that puts the emphasis on cash flows over earnings. There is much evidence in support of cash flows being a better indicator of corporate performance than earnings, and CFROI® makes sure that we consider a company first and foremost as a cash generating entity.

### 2. It Removes Accounting Distortions

Among the many adjustments that are made when calculating CFROI®, some remove what may be perceived as accounting distortions. Discussed below are three examples of this: leverage (capitalization of operating leases), research & development spending and goodwill.

#### Leverage

Leverage, or borrowing money to invest in an asset, can be a wonderful thing but it is oft-quoted as a "double edged sword" as it can magnify a company's gains and losses by the same degree. A company's underlying profitability does not depend on how much debt it carries. Too much leverage can flatter a company's profitability, but also make it look worse in a downturn. CFROI® adjusts for that effect and is essentially leverage agnostic.

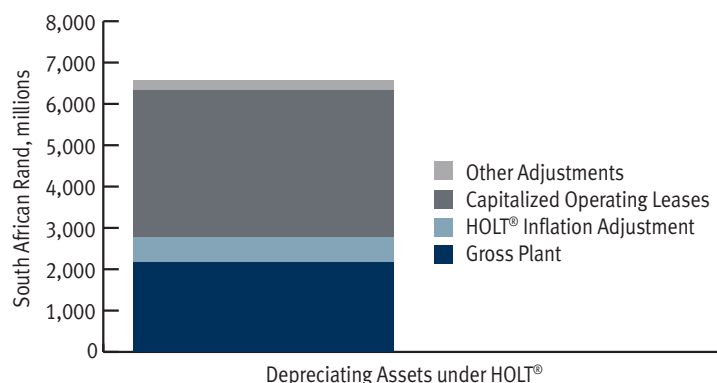
#### Example: Capitalized Operating Leases

Clicks is a South African health and beauty-focused retail and supply company with 453 stores throughout South Africa. The business is very profitable and has been for many years. However, because the company has chosen to lease a large proportion of their stores, their profitability is overstated by traditional accounting ratios as the stores appear to be an off-balance sheet item. Looking at Exhibit 2, we can see that the Gross Plant amount is only a small proportion of what HOLT® considers to be the depreciating asset base that serves as the denominator for calculating CFROI®. Once stores classified as operating leases are reintegrated and capitalized on the balance sheet, they actually constitute the majority of that asset base, as seen in Exhibit 2. Ignoring these leases would mean overstating the underlying economic profitability of Clicks' operations, as choosing an operating lease over a financing lease, or bank debt, should not be allowed to skew the actual economic profitability of a company. The CFROI® calculation accounts for this.

As a result of this adjustment, the CFROI® of this company is much lower than its return on equity (ROE) or return on capital employed (ROCE) as seen in Exhibit 3, but in this case CFROI® is a more relevant ratio as it allows for an in-depth analysis of the underlying profitability of the business. It should be noted that despite this downward adjustment, Clicks still enjoys a high level of profitability. It compares very well with its sector peers and has been a steady performer over the years. Nevertheless, in this instance, the use of CFROI® to evaluate Clicks' profitability provides a more telling, albeit lower, estimate.

### EXHIBIT 2

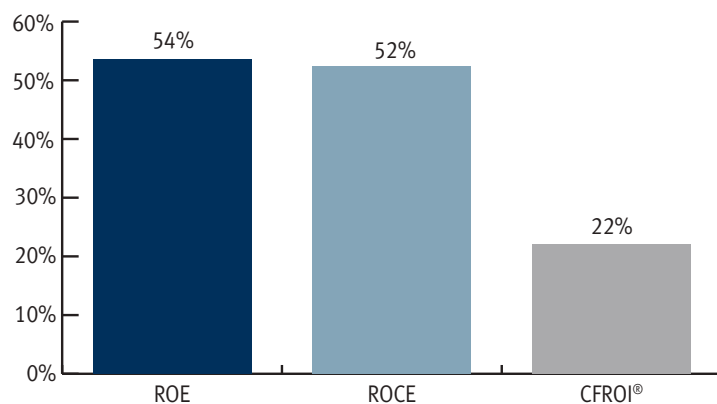
#### Adjusted Asset Base for Clicks under HOLT®



Source: Credit Suisse as of August 2014

### EXHIBIT 3

#### Profitability Ratios for Clicks



Source: Credit Suisse as of August 2014

## Research & Development Spending

Generally Accepted Accounting Principles (GAAP) requires companies to expense R&D costs in the year that they occur. However, the CFROI® framework treats R&D spending as an economic investment in a firm's future profitability; all cash outlays that are expected to contribute to a firm's future earnings should be considered a capital investment, and therefore capitalized on the balance sheet over an assigned life after accounting for inflation. In order to capitalize R&D, the CFROI® framework adds back R&D expense to net income when calculating gross cash flow and capitalizes the historic off balance sheet expenditures in the HOLT® asset base. The assigned R&D capitalization life is determined by the industry in which the company resides. The estimate of asset lives comes from academic research on the subject. For example, pharmaceuticals are assigned a life of 11 years, indicating that R&D has a long-term impact on sales. On the other hand, software (4 years), and aerospace (8 years) are assigned much shorter period lives due to the rapidly changing landscape of these industries. These asset lives provide true comparability of companies across time, sectors and geographies.

### Example: Capitalized R&D

One common concern in regard to capitalizing R&D is that doing so might artificially boost returns because an expense is being removed from the income statement. This could occur if the depreciation of that newly capitalized asset was ignored, but in the CFROI® framework it is not. Because R&D spending is not a one-off expense, capitalizing it does not make returns look better as long as it is properly depreciated. In the CFROI® calculation, it is typically assigned a short asset life, which avoids underestimating the depreciation expense. For instance, Exhibit 4 shows several emerging markets companies with high R&D spending as a percentage of sales. As is clear from this table, the CFROI® value tends to be lower than Return on Invested Capital (ROIC), despite R&D expenses being capitalized in the CFROI® calculation and not in the ROIC one.

## EXHIBIT 4

### Profitability Levels for High R&D Spenders

	ROIC (%)	CFROI® (%)	R&D as a % of Sales
Totvs S.A.	17.9	15.8	13.3
Baidu, Inc. Sponsored ADR Class A	22.7	29.3	12.9
Alibaba Group Holding Ltd. Sponsored ADR	45.8	38.8	9.7
Taiwan Semiconductor Manufacturing Co., Ltd.	20.2	11.7	8.1
Delta Electronics, Inc.	16.7	12.2	6.4
Samsung Electronics Co., Ltd.	22.1	13.2	5.8

Source: RBC GAM-US, FactSet, Credit Suisse (HOLT®), and Bloomberg as of December 2014

## Goodwill

Goodwill is defined as an intangible asset that is created when one company is acquired by another company at a premium to the sum value of its identifiable assets and liabilities. It represents the things that are hard to value – brand name, existing customer base, patents and other intangibles. Given this, it is often quite difficult to price.

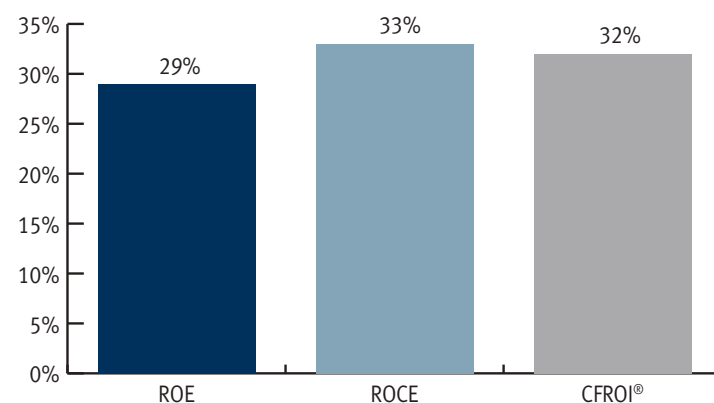
The CFROI® framework tries to help investors accurately determine a company's operating return after an acquisition by excluding goodwill from the asset base. This serves to improve the transparency of the operating returns of the underlying business, and levels the playing field in regard to comparing firms no matter what their acquisition histories have been. We believe this also helps highlight the strength of management, as not only does this showcase management's ability to integrate the firms they acquire, but through the company's CFROI® value before and after an acquisition, it can highlight management's capability to effectively and profitably run the combined business.

### Example: Goodwill

Ambev is a Brazilian brewing company that has grown over the last 15 years to become the largest brewer in Latin America and the 5th largest in the world. Its portfolio includes beers like Antarctica, Brahma, Bohemia, Skol and Stella Artois. It is also the largest PepsiCo bottler outside of the United States. However, due to growth largely driven by acquisitions, its latest reported balance sheet shows goodwill as representing 41% of its total assets and 54% of its non-current assets, both of which are some of the highest numbers you can find in the MSCI Emerging Markets universe. Taking this goodwill into account allows investors to look at the profitability of the business in relation to the price paid at the time of acquisition, and not on its own merits. As Exhibit 5 illustrates, the CFROI® is actually higher than the reported ROE and helps to highlight the excellent economics of the underlying business that might otherwise have been hidden had the goodwill adjustment not been made. In the case of Ambev, analyzing the CFROI® before and after acquisitions also confirms the quality of the management. Not only have the numerous acquisitions not negatively impacted the CFROI®, but the CFROI® has actually increased over time.

## EXHIBIT 5

### Profitability Ratios for Ambev



Source: Credit Suisse, Consensus Estimates for 2014 Full Year Numbers as of December 2014

### 3. It Allows Comparisons Across Sectors/Countries

An investor looking at emerging markets on a global basis will have to look at 23 different countries and a few more jurisdictions if one includes the more mature frontier markets and companies listed outside of their home markets. Most local markets will have their own adapted version of International Financial Reporting Standards (IFRS), use their own local standards, and many companies have a US listing and report in US GAAP. Adding to the complexity, companies often make different choices when facing similar issues. So even after a country by country harmonization, differences will still make comparisons between emerging markets companies difficult. Considering companies' CFROI® allows investors to see through those disparities as all the accounting adjustments are normalized globally and by industry.

Many market participants will do similar adjustments when researching a stock. But using CFROI® goes one step further as it makes sure that adjustments are systematic as well as consistent through time and across companies. Since the HOLT® database covers 20,000 companies in 67 countries, there is much value in using previously adjusted numbers rather than performing manual ad-hoc adjustments.

### 4. It Takes Into Account Inflation and Asset Lives

At the balance sheet level, there are two more adjustments made by HOLT® for the calculation of CFROI® that are useful when looking at the asset base of a given company. The first adjustment takes into account inflation by calculating the current value of a company's assets in real terms. The company's home country GDP deflator is used for that purpose. It allows the investor to look at the asset base at its current replacement value, rather than its fully depreciated value. The latter would mean that companies with older asset bases would look more profitable because their assets have incurred more depreciation than companies that have made more recent investments. That picture would be misleading; often, having newer assets is actually an advantage.

Second, as seen in Exhibit 6, HOLT® takes into account asset lives when calculating the CFROI®. One problem with cash flow based profitability measures is that they can be too static. Removing depreciation from the equation can give the wrong impression about the profitability of a company by failing to take into account the sustainability of those cash flows. Considering the life of assets on the balance sheet addresses that issue.

*Example: Asset Lives and CFROI®*

To illustrate that point, let's take two companies that would have similar levels of profitability at an adjusted cash flow level, but very different asset bases. LG Innotek of Korea and CCR of Brazil both have similar profitability if one only looks at their adjusted cash flows (Exhibit 6). But LG Innotek is an electronic component manufacturer and operates in a fast-changing capital-intensive industry while CCR is one of the largest highway companies in the world and operates concessions that can extend to the year 2040 and beyond. As a result of this, they've been assigned very different lengths of asset lives, which lead to very different CFROI®.

## EXHIBIT 6

### Similar Cash Flows, Different Economics

Traditional Return Metric			CFROI®
LG Innotek			CFROI® = 5%
Gross Cash Flow	=	$\frac{\$902}{\$6677}$	Asset Life: 7.8 years
Gross Investment		= 13.5%	
CCR			CFROI® = 12%
Gross Cash Flow	=	$\frac{\$1219}{\$9567}$	Asset Life: 22.8 years
Gross Investment		= 12.7%	

Source: RBC GAM-US, FactSet, and Credit Suisse

## CFROI® In Practice

CFROI® measures a company's cash flow from invested capital and tells us whether a company is adding or destroying value with the investment in assets it makes. When investing in a company for the long term, investors want to know if management is making investment decisions that produce and generate profit relative to the costs that they incur, and if they will benefit the company for years to come, versus sinking money into unprofitable asset expansion for the sake of expanding.

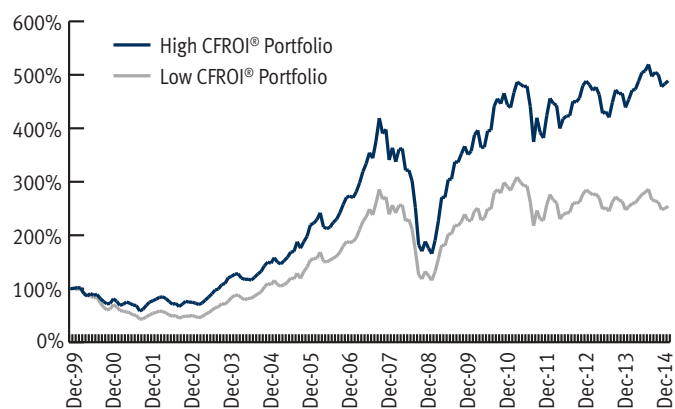
As a result of this, companies that exhibit higher CFROI® tend to generate higher returns for their shareholders. To illustrate this concept, Exhibit 7 compares returns of those emerging markets companies with the 30% highest ranking CFROI® values and the 30% lowest ranking CFROI® values. These two portfolios were then equal-weighted and tested over a 15 year period. As the tables below indicate, the high CFROI® portfolio delivered an annualized return of 10.9%, whereas the low CFROI® portfolio delivered only 6.2%. This compares to an average return for the equal-weighted universe of 6.5%. This result is also valid over different sub-periods; the high CFROI® portfolio still outperforms regardless of starting date. This should not come as a surprise as it is in-line with recent academic literature on quality investing.<sup>1</sup>

This does not mean that selecting companies with high CFROIs® in isolation will lead to strong performance. For one, transaction costs are not taken into account in the numbers above. Also, the portfolio could be excessively invested in a particular country or sector, generating unacceptable levels of risk for the final investor which CFROI® does not account for. However, if CFROI® in isolation is not representative of how an actual portfolio can be invested, it is indicative of the fact that selecting companies with high levels of CFROI® is likely to help portfolio performance over time. For that reason, a careful assessment of the level of CFROI® combined with its sustainability is extremely important.

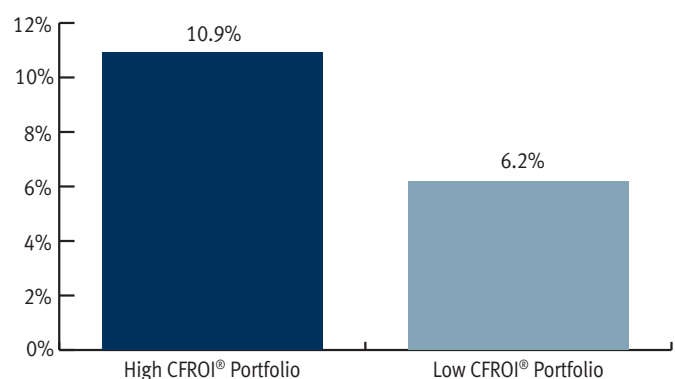
<sup>1</sup>Novy-Marx R., Quality Investing, 2012 and Fama, Eugene F. and French, Kenneth R., A Five-Factor Asset Pricing Model (September 2014).

### EXHIBIT 7

#### Cumulative Returns



#### Annualized Total Return



Source: Credit Suisse, from December 1999 to January 2014. Universe consists of emerging market companies with a \$1 billion market capitalization or greater. A high CFROI® company is in the top 30% of CFROI® values, and a low CFROI® company is in the bottom 30% of CFROI® values.

## Conclusion

CFROI® is a very useful tool for evaluating investment opportunities. Companies that consistently generate CFROI® levels above their cost of capital will compound shareholder returns. However, it is also important to identify companies that will be able to maintain that economic profitability advantage over time by taking into account various factors: quality of management teams, market share, balance sheets, level of free cash flow generation, ESG considerations, etc. An investor can improve upon the standalone CFROI® value by determining if a company can sustain its returns for years to come, and avoid those that will revert to the mean over the short to medium term.

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