

QUEST®

A DIVISION OF
CANACCORD GENUITY

Question Everything.



Quest® User Guide.

CANACCORD Genuity

To us there are no foreign markets.™

QUEST® is at this stage registered in the UK and in the USA, and common law trade mark rights are asserted in other jurisdictions.

Canaccord Genuity Limited is authorised and regulated by the Financial Conduct Authority (FCA). For purposes of FINRA Rule 2241, Quest® is considered third-party research. Quest® is non-independent research and is a marketing communication under the FCA Conduct of Business rules. For Professional Investors only. Past performance is not a guide to future performance. Stockmarket and currency movements mean the value of investments can fall as well as rise and investors may not get back the amount originally invested.

The information contained herein is drawn from sources believed to be reliable, but the accuracy and completeness of the information is not guaranteed, nor in providing it does Canaccord Genuity Limited assume any liability. This information is given as of the date indicated and Canaccord Genuity Limited assumes no obligation to update the information or advise on further developments relating to any securities mentioned in this material. Canaccord Genuity Limited, its affiliated companies and holdings of their respective directors, officers and employees and companies with which they are associated may, from time to time, include any securities mentioned in this material. The information in this document is provided for information purposes only and does not constitute an offer or solicitation to buy or sell any Designated Investments discussed in any jurisdiction where such offer or solicitation would be prohibited. As a result, any Designated Investments discussed herein may not be eligible for sale in some jurisdictions. This is not, and under no circumstances should be construed as, a solicitation to act as a securities broker or dealer in any jurisdiction by any person or company that is not legally permitted to carry on the business of a securities broker or dealer in that jurisdiction. To the fullest extent permitted by law neither Canaccord Genuity Limited, its affiliates, nor any other person accepts any liability whatsoever for any direct or consequential loss arising from any use of the information contained herein.

This material may not be altered in any way, or transmitted to or distributed to any other party, without the prior express written permission of Canaccord Genuity Limited.

Accounts, Share Prices & Global Consensus Estimates data provided in conjunction with S&P Capital IQ © 2015; Benchmark Sector comparatives are based on the Global Industry Classification Standard (GICS®) and provided in conjunction with S&P Capital IQ © 2015 (and its affiliates, as applicable). Share prices are relative to the relevant regional benchmark MSCI ACWI IMI.

All rights reserved. Quest®, CITN™, Companies in the News™, CFROC™, portfolioAngle™ and triAngle™ are all trademarks of Canaccord Genuity Limited.

Canaccord Genuity Limited is a Limited Company registered in England and Wales: no. 1774003; registered office: 88 Wood Street, London EC2V 7QR. E&OE. © Canaccord Genuity Limited. Canaccord Genuity Limited is authorised and regulated by the Financial Conduct Authority and is a member of the London Stock Exchange.

Contents

Introduction	3
Cash Flow Returns.....	5
The trouble with accrual accounting.....	5
Calculating cash flow returns	5
Valuation using Quest [®] CFROC	7
The Quest [®] Platform.....	9
Navigation	9
Settings	9
Company	9
Summary	10
Strategy	10
Risk.....	14
Valuation	16
Sensitivity	18
Modeller	20
Momentum	21
Charting.....	24
Commentary.....	24
My Quest [®]	24
Aggregator	26
Portfolio	26
Screening	27
Quest [®] triAngle	31
Introduction	31
Historic performance	31
Quest [®] triAngle Principles and Methodology	32
How to outperform	32

A note about EPS momentum	32
Combining Value, Quality and Momentum.....	32
How Quest [®] measures Value, Quality and Momentum.....	33
Calculating the triAngle score.....	33
Quest [®] triAngle Online	34
Style Matrix	36
Quarterly Track Record.....	36
Quest [®] Publications	37
CITN – Companies in the News	37
Quest [®] Sector Chart Books.....	37
Quest [®] triAngle Escalator	37
Appendices.....	39
GICS (Global Industry Classification Standard)	39
Cost of Capital.....	42
Risk-free rate	43
Cost of equity	43
Cost of debt	43
Weighted average cost of capital (WACC)	44
Contacts	45

Introduction

Quest[®] is Canaccord Genuity's proprietary offering of online analytical tools, valuation models and market commentary for use by international equity fund managers. The platform was originally launched in the UK in 1996. In 2003, the software was rewritten to expand coverage to 2,900 companies in Europe, North America, Asia and South Africa. In response to growing demand for enhanced global coverage, the Quest[®] platform was re-launched in 2015, following a complete rewrite of the software. Although each upgrade enhanced the functionality and added new features, the key financial logic at the heart of Quest[®] (such as CFROC and CFROA) remains intact.

The new Quest[®] platform allows for analysis of any number of companies and in fact covers 95% of total global market capitalization. The outstanding percentage comprises small, illiquid stocks. The platform provides complete flexibility to quickly add new companies to the coverage universe as they become suitable for inclusion or if requested by a user.

Quest[®] was originally developed with three key principles in mind:

- Analyze corporate wealth creation by looking at returns, key value drivers and capital allocation decisions;
- Provide a robust valuation framework including cash flow modelling and more conventional approaches;
- Help investors to think like owners, willing to bring management to account.

Quest[®] provides the foundation for numerous Canaccord Genuity products and services. The platform provides global strategists, equity research analysts, Quest[®] analysts and asset managers with the ability to combine contemporary equity analytical techniques with a wide range of more conventional financial analyses. Quest[®] supports both *idea generation* – through the numerous screening tools; and *idea validation* – through individual company analysis and peer group comparison.

The Quest[®] approach to corporate analysis and valuation is based on two simple notions: the first is that a company can create value for shareholders by earning a cash flow return on capital in excess of its cost of capital while growing its capital base. The second is that in a competitive world, no company can maintain returns above cost of capital forever.

Central to the Quest[®] analysis is the CFROC (cash flow return on capital) calculation. While CFROC is a more complex calculation than other return on capital ratios such as ROCE or ROIC, it has the significant advantage of being able to take asset life and asset mix into account. While two companies may have the same ROIC, the one that has to renew its assets faster will have lower cash flows and therefore a lower CFROC.

QUEST®

A DIVISION OF
CANACCORD GENUITY

Question Everything.

World power
anyone?



CANACCORD|Genuity

To us there are no foreign markets.™

Cash Flow Returns

The trouble with accrual accounting

In theory, the better a company performs, the more highly its stock should be valued. By and large, this is true. However, all too often, investors rely on basic operational performance measures (such as EPS growth or ROE), which do not correlate well with their linked valuation measures (in this case, the P/E multiple and the price-to-book ratio). In our view, the popularity of these measures is simply attributable to their availability and ease of calculation. Accrual accounting was devised as a framework for solvency and taxation, not for corporate performance and valuation.

Basic measurement of earnings growth is one-dimensional. It ignores the amount of capital employed to generate growth. Conventional return measures such as ROE and ROCE and their linked valuation measure – price-to-book – are a partial solution, but subject to the same limitations as other accrual-based measures.

While cash flow returns require considerably more effort to calculate, the benefit to investors is a much tighter relationship between the operational performance metric (returns vs. cost of capital) and the linked valuation measure (market-to-book).

Quest[®] calculates two measures of cash flow returns:

1. **CFROC** (cash flow return on capital) is the return on total capital, including goodwill. It is a measure of management stewardship of all capital.
2. **CFROA** (cash flow return on assets) is the return on capital excluding goodwill. Because it is a measure of the return on operating assets, CFROA is a better indicator of a company's competitive position. In the Quest[®] discounted cash flow model, CFROA fades to cost of capital over a standard number of years, as a company's competitive advantage is eroded by competition.

Note: When comparing cash flow returns with their valuation measure, it is important to use market-to-book **including** goodwill for the **CFROC** comparison and market-to-book **excluding** goodwill for the **CFROA** comparison.

Calculating cash flow returns

The first step in calculating cash flow returns is to start with the income statement and shift from net income or earnings to **gross cash flow** by making the following adjustments:

Normalised net income

- + Depreciation and amortisation
- + Interest expense
- + Rental expense
- Tax shield on interest and rent
- + Other (deferred tax, minorities)

= Gross cash flow

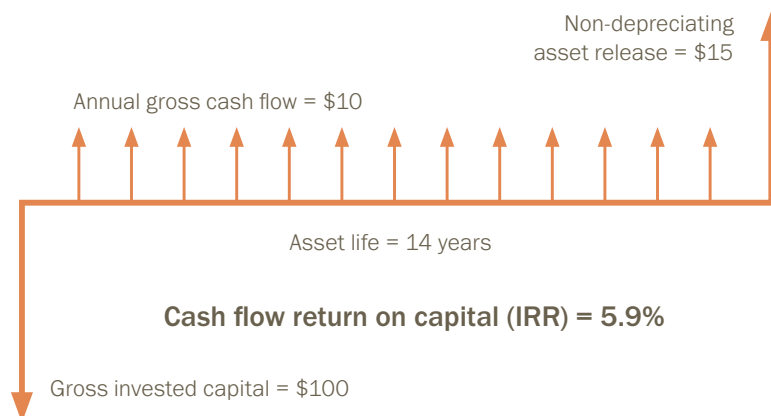
The second step is to take the balance sheet and shift from net assets to gross invested capital by making the following adjustments:

Tangible fixed assets

- + Replacement cost adjustment
- + Capitalised operating leases
- + Non-depreciating assets (land, investment property, working capital, financial assets)
- = Gross invested assets (for CFROA calculation)
- + Goodwill
- = Gross invested capital (for CFROC calculation)

The final step is to use **gross cash flow**, **gross invested capital**, **non-depreciating assets** and **asset life** as inputs into an **internal rate of return (IRR)** calculation. The result of the example shown below can be arrived at using Excel's RATE function:

[=RATE(14,10,-100,15,,0.5)]



Suppose two companies have exactly the same “return” (earnings, EBIT, etc.) and the same “capital” (net assets, capital employed, etc.). Most conventional return on capital measures, which are typically calculated as “A over B”, would attribute the same return to both companies.

But what if the assets of the two companies have different economic (productive) lives? What if the two companies have different mixtures of depreciating assets (property, plant and equipment, leases) and non-depreciating assets (land, investments, net working capital)? Both of these factors will influence the true economic return.

Thus, the incorporation of **asset life** and **asset mix** in an IRR calculation is an important differentiating feature of the CFROC measure.

In Quest[®], CFROC and CFROA are expressed in real terms, post tax. All of the input information is drawn from published accounts. While still relying on the income statement, these measures represent a shift from an accruals approach to a **cash-based approach**, addressing many of the issues that may distort conventional metrics, including inflation, depreciation policies, deferred

tax, off-balance sheet assets and liabilities (primarily leases), treatment of goodwill, and the mix and economic life of assets.

Adjusting for inflation allows investors to make realistic comparisons over time and the objective framework of Quest[®] allows investors to make comparisons between companies.

Cash flow returns may be deconstructed using a DuPont-style analysis, to cast light on the underlying factors behind changes in both the level and trend in CFROC and CFROA. The key inputs for this analysis are **asset utilisation, margins and the tax rate.**

Valuation using Quest[®] CFROC

In addition to measuring corporate performance, the Quest[®] CFROC framework can be used in stock valuation. This functionality is based on a particular, systematic application of the discounted cash flow (DCF) model.

The conventional approach to creating a DCF model for equity valuation is to calculate explicit forecasts of cash flows over the next several years and a terminal value that captures the sum of all cash flows in the post-explicit period. This is fine in theory, but in practice may present problems of consistency and rigour. Depending on the business and the competitive environment in which the company operates, the post-explicit period assumptions can have a huge influence on the resulting valuation. The sensitivity of DCF models to the terminal value is the primary reason many investors are wary of them.

In calculating DCF, a typical equity analyst is tasked with estimating revenues, margins, growth and investment needs on what should be a full-cycle basis, typically starting 5 to 10 years in the future. Experience suggests that a number of problems may arise, including:

- Hockey stick (J-curve) optimism;
- Growth rate extrapolation which implies unfeasible market size/share assumptions;
- Seldom allowing for any cyclical downturn;
- Assets implicitly growing more slowly than profits, leading to ever increasing returns.

The default Quest[®] valuation model addresses these issues by assuming that companies are bound by the constraints of the competitive life cycle. Quite simply, in a normally competitive environment, companies can be expected to earn a return in line with their cost of capital. Those earning above this rate will see their supernormal returns eroded by competition. Those earning below are likely to be starved of capital by rational investors who are unwilling to invest in projects that produce returns lower than their cost of capital. In order to survive, these companies will face the need to restructure, or dispose of businesses, which will result in the rate of return moving back up to the cost of capital.

This approach, often referred to as a process of mean reversion, is consistent with economic theory of the firm in which, in the long term, companies earn only “normal” profits, i.e., those that equate to the required rate of return that keeps supply and demand for capital in balance. By the same token, growth is assumed to mean revert to a rate approximating the long-term real economic growth rate in mature economies.

QUEST[®] | A DIVISION OF
CANACCORD GENUITY

Question Everything.

Insight
is everything.



CANACCORD | Genuity

To us there are no foreign markets.™

The Quest[®] Platform

The Quest[®] platform can be found at www.canaccordquest.com

Navigation

Upon secure login, users will be taken to the Quest[®] home page, which contains two charts with timely and relevant Quest[®] analysis as well as links to recent Quest[®] commentary and a summary of the most-read commentary.

The ribbon at the top of the home page contains a number of important links:



Settings

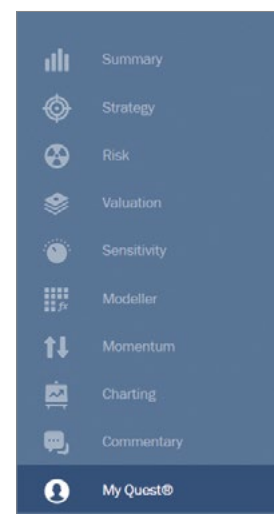
Clicking on the cogwheel in the top right corner of the page allows users to change their password and choose what universe to display in Quest[®]. Choice of universe will have a bearing on the following:

- In the Company pages, margins, spreads, returns and other ratios are shown for the company, its industry and its market. In this case, “market” is an average of all the companies in the universe, while “industry” is the subset of stocks in the GICS level 3 classification for that universe.
- Share price relative charts show the share price relative to the MSCI index that most closely correlates with the chosen universe.
- In the Aggregator pages, all sector and industry choices will show the averages for these sectors and industries within the chosen universe.

Company

The **Company** tab will reveal a menu bar down the left-hand side of the page. In previous versions of Quest[®], these menu items appeared as tabs along the top of the page.

Note: The new Quest[®] platform uses the globally recognised GICS industry classification, a change from the FTSE ICB classification used in previous versions. A full breakdown of the GICS structure is available in the Appendix of this document.



Summary

The **Summary** page provides a grouping of important information, which can be found throughout the Quest[®] platform. Each of the elements on this page will be covered in the sections that follow.

Strategy

The **Strategy** page is concerned with the quality of a company. Central to this page is the Cash Flow Return on Capital (**CFROC**) chart, which shows whether a company has been able to beat its cost of capital in the past, whether returns have been growing or declining, and whether they have been steady or erratic. Using consensus forecasts, **Strategy** also shows the returns expected for the next two financial years.



The CFROC chart contains an overlay showing Cash Flow Return on Assets (CFROA). While CFROC, the return on total capital, provides an indication of how well management has looked after shareholders' capital, CFROA, the return on operating capital (i.e., excluding acquired goodwill) provides a more meaningful indicator of a company's competitive position. In the DCF calculation, it is CFROA, not CFROC, that is faded to cost of capital.

The last two columns show CFROC and CFROA based on consensus forecasts. The two crosses (++) represent the CFROC implied in the current share price.

Since returns can be deconstructed in a DuPont-style analysis into operating margins, tax rate and asset utilisation, we have tables showing these items, as well as asset life and asset mix.

The second chart on the **Strategy** page shows the historic growth in invested capital, including two years of consensus forecasts. The most valuable companies are those that can grow their capital base while maintaining a high CFROC.



The line overlaying the bars shows the **equilibrium growth rate**, which is the rate at which a company can grow through internally generated cash flow. The two crosses (++) show the rate at which the company needs to grow in order to justify the current share price.

The final charts on the **Strategy** page show the evolution of EBIT margins, asset utilisation, sales growth and ROCE for the company and its industry.

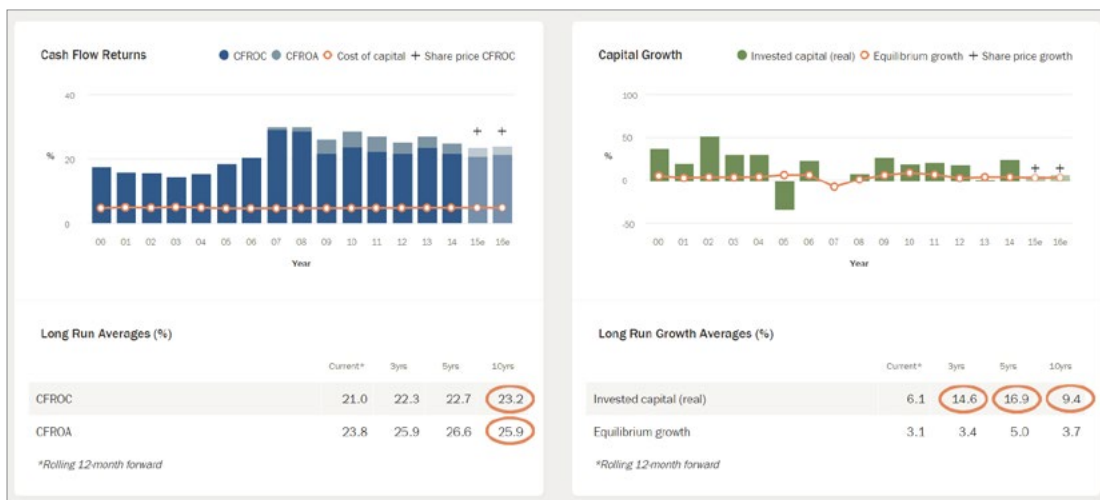


Below the charts, Quest[®] provides historic growth rates of invested capital, sales, profits, and other relevant information about the company, the industry and the market. And finally, the **Strategy** page provides a summary P&L and a breakdown of gross cash flow and invested capital.

Reading the Quest[®] Strategy Charts

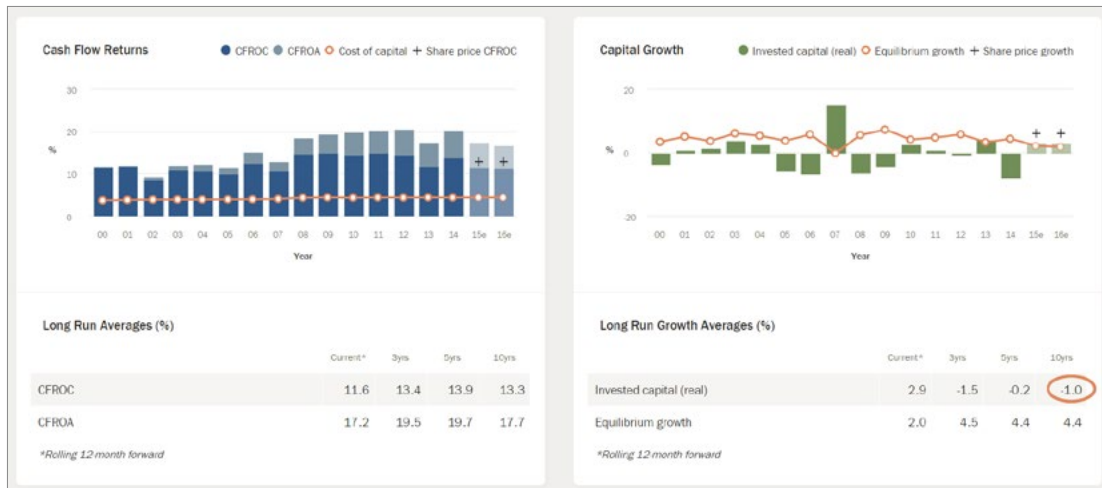
Companies with correctly incentivised management should be aiming to earn returns in excess of their cost of capital, while deploying increasing amounts of capital. It sounds straightforward, but few are able to achieve this balance over a prolonged period. One good example is Ireland-based bookmaker Paddy Power PLC, whose cash flow returns and growth charts are displayed below.

This company has not only maintained, but has improved returns while dramatically expanding the scale of its business. Long-term rates of return and growth are displayed below the charts.

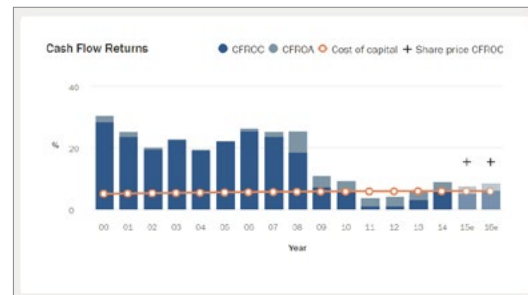
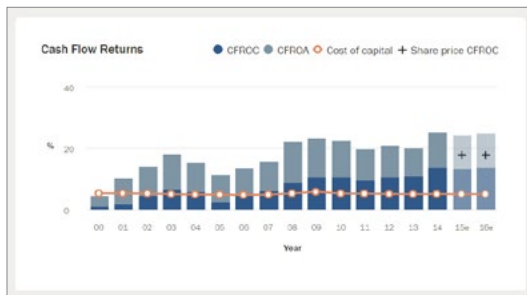


Value compounders see their Quest[®] Value per Share (QVPS) rise rapidly and, in this example, Paddy Power has seen its QVPS grow at 21.7% per annum for the last five years (as can be seen later on the Valuation page).

High returns alone are not enough. In the example below, IBM has produced returns well above its cost of capital for a number of years, but invested capital has decreased over the long term. Consequently, QVPS has grown by just 6.2% per annum over the last five years (see the Valuation page). Companies with high returns but limited growth provide bond-like returns.

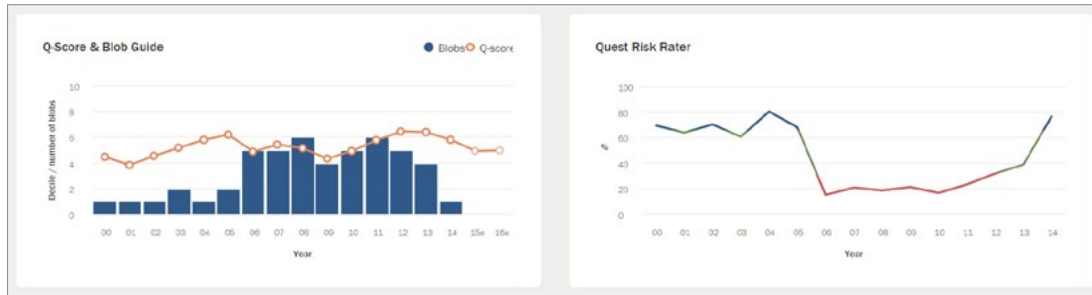


Other profiles that are seen regularly in Quest[®] are the *Value Destroyer turned Value Creator*, and its inverse, *Value Creator turned Value Destroyer* (see charts below). These are companies that have seen a reversal of returns from persistently below/above cost of capital to consistently above/below cost of capital. These types of reversals are sometimes driven by a change in management (e.g., Compass Group – *Value Destroyer turned Value Creator*) and sometimes by a change in competitive dynamics (e.g., Nokia – *Value Creator turned Value Destroyer*). The QVPS and the share price will generally follow the direction of returns.



Risk

The dedicated **Risk** page is a new feature on the Quest[®] platform and contains information that was previously only accessible through a link to a spreadsheet. This page shows our proprietary risk measures: the **Q-score**, the **Blob Guide** and the **Quest[®] Risk Rater**. These measures were developed in 2008, and over time have demonstrated a proven ability to identify companies with higher levels of risk.



The **Risk** page also presents a number of conventional risk measures, including:

- Balance sheet strength
- Interest and fixed charge cover
- Cash conversion
- Free cash flow generation and use
- Working capital evolution
- Dividend yield and cover

Q-Score

The Q-Score is our proprietary measure of financial strength, which assigns a score between zero (financially weak) and 2.5 (financially strong) to four factors: 1) level of cash flow returns, 2) stability of cash flow returns, 3) fixed charge cover, and 4) current ratio. These are added together to give a total Q-Score between zero and 10.

Q-Score Metrics	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015e	2016e
Q-score	4.5	3.8	4.6	5.2	5.8	6.2	4.9	5.4	5.1	4.3	4.9	5.8	6.5	6.4	5.8	4.9	5.0
Change in Q-score	-0.8	-0.6	0.7	0.6	0.6	0.4	-1.3	0.5	-0.3	-0.8	0.6	0.8	0.7	-0.1	-0.6	-0.9	0.0
Q-score - CFROA	1.1	0.9	1.0	1.2	1.4	1.3	0.9	1.1	1.0	0.7	1.0	1.3	1.5	1.4	1.4	0.9	0.9
Q-score - CFROA stability	1.8	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.9	1.5	1.5	1.6	1.5	1.5	1.4	1.4	1.6
Q-score - current ratio	1.0	0.9	1.2	1.2	1.5	1.9	0.9	1.2	1.1	1.0	1.4	1.6	1.6	1.9	1.3	1.2	1.1
Q-score - fixed charge cover	0.6	0.4	0.7	1.1	1.3	1.5	1.3	1.3	1.2	1.1	1.1	1.3	1.9	1.6	1.6	1.4	1.4

Blob Guide

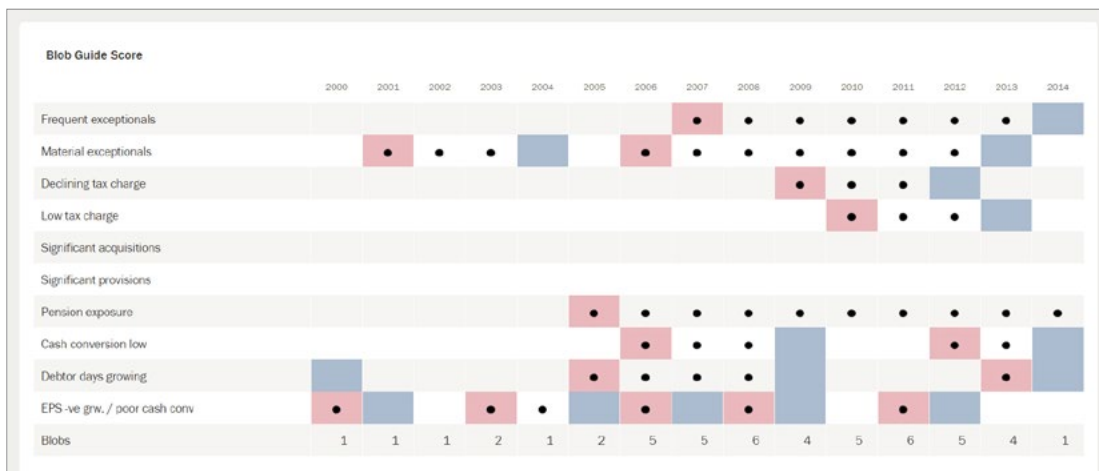
The **Blob Guide** assesses a company's accounts to identify indications of poor accounting quality (7 items) or earnings quality (3 items). The number of blobs can range from zero (low risk) to 10 (high risk).

There are many ways in which a company can legally manipulate its accounts in order to make a positive impression, and the **Blob Guide** can highlight where such manipulation might have taken place. For example, exceptional items are excluded from underlying profit numbers, so if an item can be classified as exceptional, this boosts "underlying" profits. The Blob Guide highlights frequent and material exceptional items. A low or declining tax charge might be a reflection of good tax planning, but it might also be an indication of a material difference between the pre-tax profits shown to the tax authorities and those shown to shareholders.

Other accounting items highlighted by the **Blob Guide** include significant acquisitions, significant provisions and high pension liability.

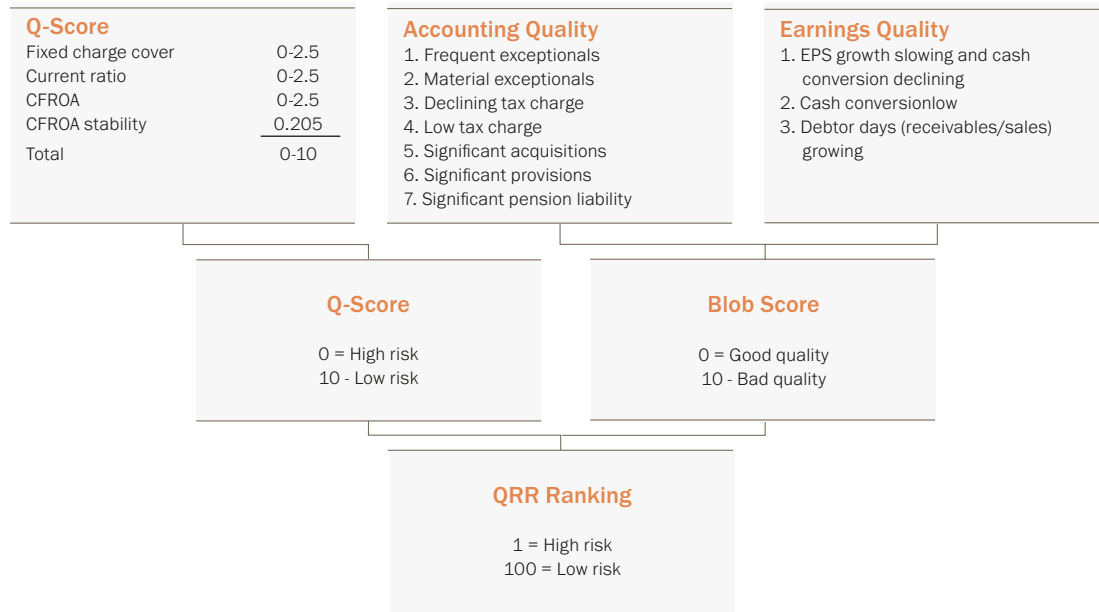
The three earnings quality blobs look for discrepancies between profits and cash flows, especially where the former are bigger than the latter. While there may be a perfectly benign explanation, it is also possible that a company is trying to show its profits in the best light, while the cash flow statement is a better reflection of the true state of affairs.

On the **Blob Guide** table, blobs with a red background represent those that are new in the current year, while the blue background represents those that have disappeared since the previous year.



The Quest[®] Risk Rater (QRR)

The **QRR** is a 50/50 combination of the Q-Score and the Blob count, which gives a broad measure of risk. The diagram below illustrates how the **QRR** is calculated.



Valuation

The main chart on the **Valuation** page shows a company's **Quest[®] Value per Share (QVPS)**, plotted against the actual share price, with highs and lows represented by the orange bars. In the area above the chart, users can see values for the current period, in addition to the Quest[®] valuation (i.e., the amount of upside or downside to the current QVPS).

Below the chart are statistics showing how accurately Quest[®] has tracked the company in the past. The **R-squared** value shows how closely correlated the two lines are, while the **Variance** shows, in percentage terms, how far the QVPS falls outside the share price high/low range over the last 10 years. It is time weighted.



This chart has two primary uses:

- It shows how well Quest[®] has tracked the stock in the past and whether there is a systematic bias. A sudden recent divergence can signal a buying or selling opportunity.
- The slope of the QVPS line shows whether the company has been creating or destroying value in the past, as well as the 12-month forward valuation based on consensus forecasts. The historic growth in QVPS can be found in a table further down the page.

Also on the **Valuation** page, users will see charts comparing a valuation metric with an operational performance measure, based on the theory that the better a company performs, the higher the appropriate valuation.

The first chart shows the **Quest[®] Market-to-Book (QMTB)** [(market cap + debt + quasi debt)/estimated replacement cost of assets] against CFROC/WACC. Users may be more familiar with EV/IC against ROIC/WACC, a similar but less sophisticated concept, which fails to take into account inflation or asset life.

The chart to the right combines the two, dividing the valuation metric (QMTB) by the operational metric (CFROC/WACC), to provide the **Q-Discount**. A rising chart indicates a stock being re-rated, with valuation rising faster than operational performance.



The next two charts on the valuation page provide similar comparisons, this time using EV/Sales against EBIT margin, then combining the two in the EV/Sales discount.

Other tables and charts show conventional valuation measures.

Sensitivity

The **Sensitivity** page allows users to manipulate the key inputs into the DCF model which drives the default Quest[®] valuation. This is a useful tool for two very important reasons:

1. Although Quest[®] has proven to be remarkably accurate on valuation, there are times when the default assumptions are inappropriate for a particular company.
2. In an uncertain world, it can be useful to measure the sensitivity of a valuation against different forecast scenarios.

The default assumptions in Quest[®] are:

- Consensus forecasts are used to calculate cash flow returns for the next two years.
- Forecast capital growth is driven by an algorithm that combines consensus forecasts and the Quest[®] estimate of equilibrium growth.
- Cost of capital is based on CAPM (See Appendix for a full explanation of cost of capital).
- Returns fade to cost of capital over a period of 9 or 15 years
- Growth fades over the same period to 1.8%

Below are the four areas of the **Sensitivity** page where users can input their own assumptions:

1. Consensus EPS forecasts can be overridden with the user's own estimates.

	Estimates (p)						
		MAR-14		MAR-15		MAR-16	
		Actual	Your	Quest [®]	Your	Quest [®]	
EPS		57.9	<input type="text"/>	34.9	<input type="text"/>	35.8	
DPS		27.6	<input type="text"/>	28.1	<input type="text"/>	28.2	

2. Key variables in the valuation calculation can be overridden. The CFROC and CFROA values shown are the 12-month forward numbers calculated from consensus forecasts. These values represent the point from which returns are faded

Strategy		Your	Quest®
CFROC	<input type="text"/>		5.3
CFROA	<input type="text"/>		5.8
Cost of Capital	<input type="text"/>		4.5
Real Capital Growth	<input type="text"/>		0.9

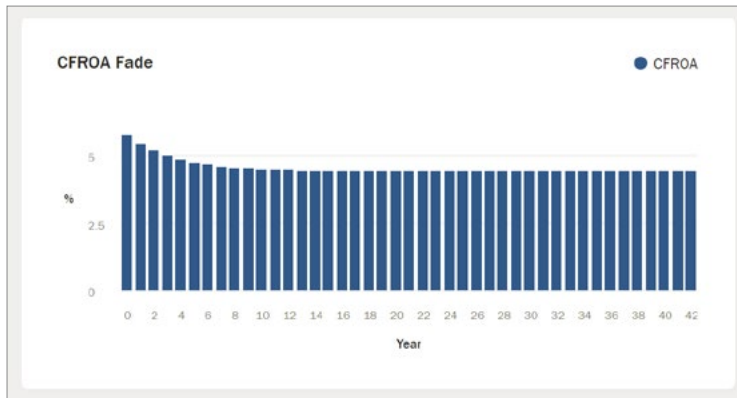
3. A new feature allows users to target a future CFROA level. The model will raise CFROA to this level over the specified time period, before fading in the normal way. This feature is especially useful when modelling near-term returns for a growth company or a company recovering from a fall in returns

Cash Flow Returns Medium Term Target		Your
CFROA Target (%)	<input type="text"/>	
Years Until Target	<input type="text"/>	

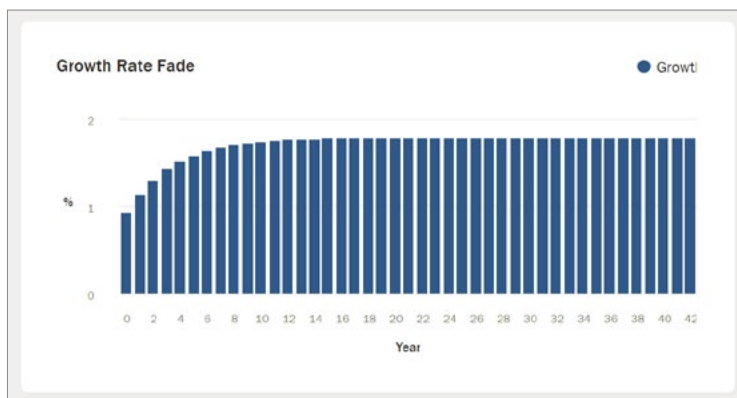
4. The onset of the fade of returns and/or growth can be delayed.

Variables	Delay (Years)		Fade (Years)		Average (%)	
	Your	Quest®	Your	Quest®	Your	Quest®
	CFROA	<input type="text"/>	0	<input type="text"/>	9	<input type="text" value="4.47"/>
Growth	<input type="text"/>	0	<input type="text"/>	9	<input type="text"/>	1.8

By way of example, the following chart shows the default fade of returns for a particular company



The second chart is for the same company, but by using the custom inputs described in charts 3 and 4 above, CFROA has been allowed to build to 15% over five years, and the onset of the fade has been delayed by a further five.



Modeller

The **Modeller** page takes scenario analysis to a new level, providing users with more control over the underlying drivers of value. For any period between 2 and 10 years, the user can input values for:

- Sales (or sales growth)
- EBITDA (or EBITDA margin)
- Other cash in/out
- Tax rate
- DPS (or DPS growth)
- Capex (or capex/sales)
- Working capital (or working capital/sales)

	Auto Infill	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Sales US\$ (m)	<input checked="" type="radio"/> <input type="radio"/>	716.3	735.5	756.3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sales growth %	<input type="radio"/>		2.7	2.8										
EBITDA US\$ (m)	<input checked="" type="radio"/> <input type="radio"/>	37.7	43.2	42.3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
EBITDA margin %	<input type="radio"/>	5.3	5.9	5.6										
Other cash in/out US\$ (m)	<input type="radio"/> <input checked="" type="radio"/>	0.0	0.0	0.0	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Normalised tax rate %	<input type="radio"/> <input checked="" type="radio"/>	37.2	36.6	37.6	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
DPS US\$	<input checked="" type="radio"/> <input type="radio"/>	0.0	0.0	0.0	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
DPS growth %	<input type="radio"/>													
Capex US\$ (m)	<input checked="" type="radio"/> <input type="radio"/>	-17.3	-20.0	-23.0	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Capex / sales %	<input type="radio"/>	2.4	2.7	3.0										
Working Cap US\$ (m)	<input checked="" type="radio"/> <input type="radio"/>	16.3	14.6	12.5	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Working Cap / sales %	<input type="radio"/>	2.3	2.0	1.6										

The **Modeller** page also provides users with the ability to vary the cost of capital and the fade variables, as in Sensitivity.

Additional Parameters											
	Your	Quest	Delay (yrs)			Fade (yrs)			Average (%)		
			CFROA	Your	QuestB	CFROA	Your	QuestB	CFROA	Your	QuestB
Cost of capital (%)	<input type="text"/>	6.09		<input type="text"/>	0		<input type="text"/>	9		<input type="text"/>	6.09
Real growth (%)	<input type="text"/>	6.17	Growth	<input type="text"/>	0	Growth	<input type="text"/>	9	Growth	<input type="text"/>	1.80

When the user clicks on **Results**, Quest[®] reveals a series of charts and tables which show the implications for returns, asset growth, margins, asset utilisation, sales growth and EPS growth.

The **Actions** button at the top of the page allows the user to save the scenario, share it with another Quest[®] user, or load a previously saved one.

Momentum

The **Momentum** page tracks the changes in a number of important metrics, to provide investors with an idea of how a company’s performance and the market perception of it change over time.

Note: at times, this section refers to our proprietary triAngle ranking system; for further details on the triAngle, please refer to the dedicated triAngle section on page 31.

The first chart shows stock price performance relative to the market (i.e., the chosen universe).

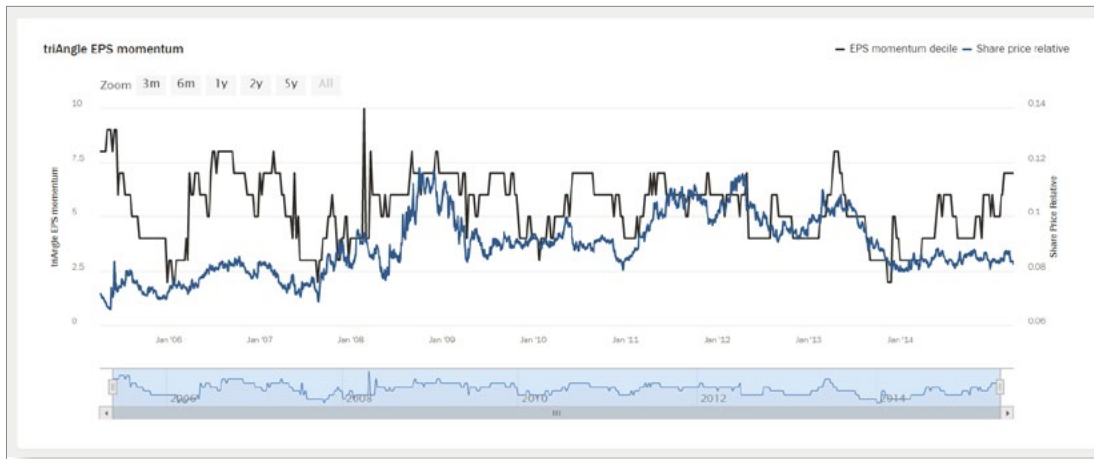


Next, Quest[®] shows how a company's **triAngle** scores have evolved over the last 10 years* (for an explanation of our proprietary **triAngle** ranking system, please turn to page 31). This chart shows how the Value, Quality and Momentum factors and the overall triAngle score have evolved over the chosen time period. As with all the Quest[®] charts, the user can toggle lines on or off by clicking on the **legend**. Sometimes this can provide greater clarity, especially if two or more lines are closely overlaid.

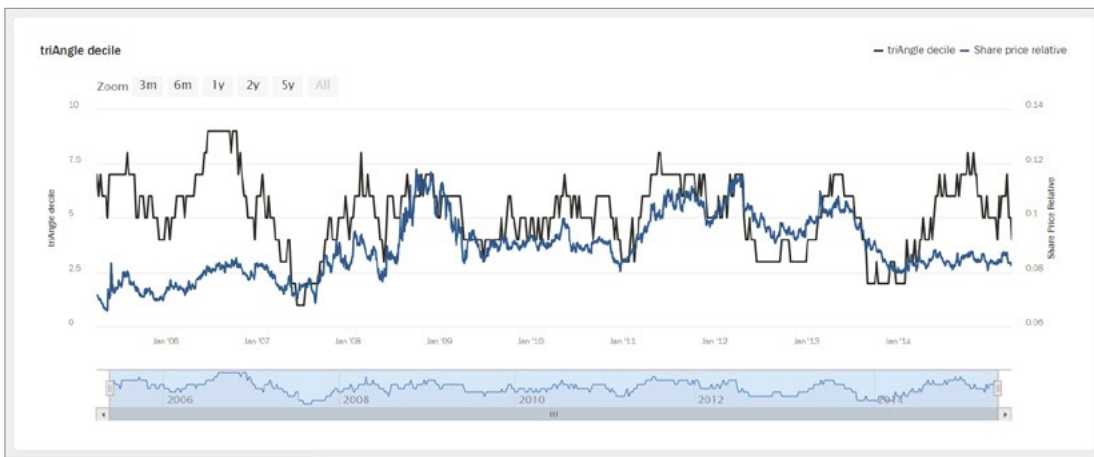


**Note: only those companies that have been in Quest[®] for 10 years will display a 10-year triAngle history.*

The following chart shows the **triAngle EPS** momentum factor against the share price relative, enabling the user to see to what extent changes in consensus EPS forecasts drive the relative share price.



The final chart shows the overall **triAngle Decile** against the share price relative, again in order to show to what extent the former drives the latter.



Finally, a table shows the five factors that make up the overall **triAngle Momentum** score.

triAngle Momentum sub factors	
9 month relative trend decile	5
100 / 200 day switch decile	4
12 month relative range decile	4
30 / 90 day switch decile	5
EPS momentum decile	7

* Range varies from 1 to 10

Charting

The **Charting** page allows the user to compare two data items from a single company or the same data item for multiple companies. While mostly self-explanatory, there are some things worth noting:

- Some charts have vertical orange lines running through the points. These lines indicate the high and low values for the year.
- Any data series can be switched off and back on by clicking on the **legend**, which acts as a toggle switch

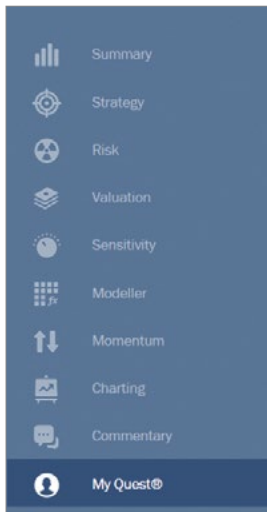
Commentary

The **Commentary** page contains links to any articles that have been written about the company in Quest[®] publications such as Companies in the News (CITN).

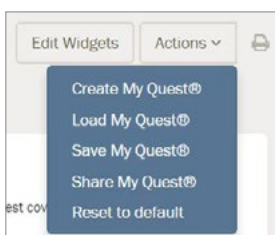
My Quest[®]

The new My Quest[®] feature allows users to build custom pages, save them for future use and share with other users.

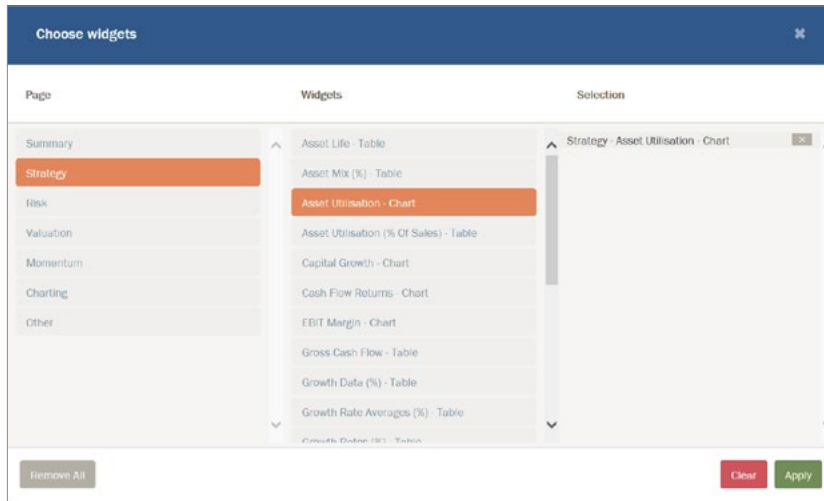
By selecting My Quest[®] from the main menu, users will be presented with a blank screen with two buttons at the top, Edit widgets and Actions.



The “Actions” button will open a drop-down menu allowing the user to create a new page



The rest is pretty self-explanatory. Build a My Quest[®] page by choosing widgets. Each line can contain a single full-width widget or two at half-width.



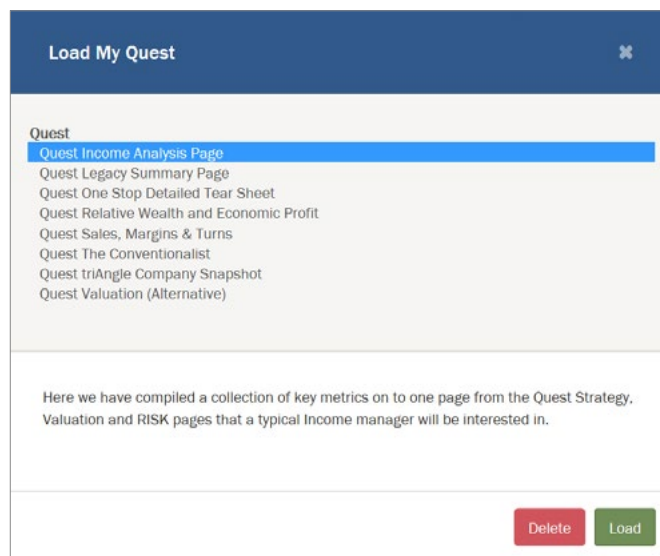
All of the tables and charts from anywhere in Quest[®] are available for inclusion in My Quest[®], including all the charts in the Charting function. Moreover, there are additional widgets included under Other, which are not available elsewhere on the platform.

On request, the Quest[®] team can build new tables and add them into this section.

Saved pages can be accessed by clicking on Actions -> Load My Quest[®].

The dialogue box (Figure 4) contains two sections. The Quest[®] section contains a number of pages available to all users. The pages in the Local section are only available to the user who created them.

My Quest[®] pages can be shared with other Quest[®] users via the Sharing function (also available under Actions).

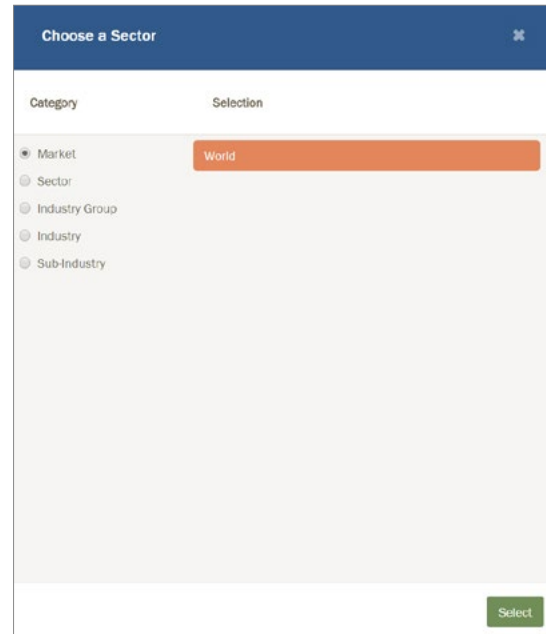


Aggregator

The **Aggregator** page allows users to aggregate at the Market, Sector, Industry Group, Industry or Sub-Industry level, depending on how broadly or narrowly the user would like to define a group of stocks.

When “Choose a Sector” is selected, a dialogue box opens (see picture). “Market” refers to the geographic universe chosen in Settings, and numbers can be aggregated at this very high level. Other choices relate to the four levels of sector categorisation in the GICS system (see Appendix).

Once a Market, Sector, Industry, etc. has been chosen, users can analyse it in much the same way as a Company, using the menus down the left-hand side of the page.

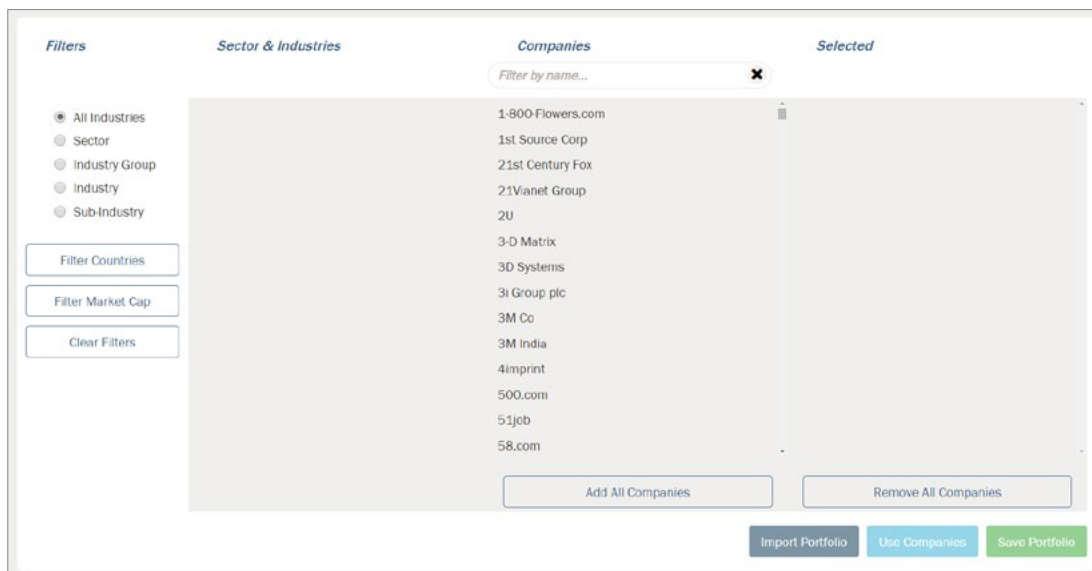


Portfolio

The **Portfolio** function allows a user to create and save portfolios, and run reports to display data items against the stocks chosen in the portfolio.

If the user has no saved portfolios, he or she will be prompted to set up a new one. There are several ways of doing this:

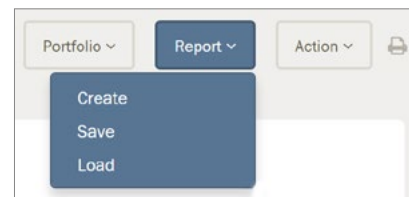
1. Companies can be selected manually from the list, which contains all companies in the user’s chosen universe. “Add All Companies” allows the user to do just that.




2. The universe can be narrowed down by choosing a sector, industry group, industry or sub-industry. Only companies in the chosen group will be displayed in the list. As in option 1 above, users have the option to add all companies at once, or choose one by one.
3. The list of companies can be narrowed down by country.
4. The user can choose a market cap range to narrow the universe.
5. Clicking on “Import Portfolio” opens a dialogue box into which a list of SEDOL or ISIN codes can be pasted (for example, from a user’s existing spreadsheet).

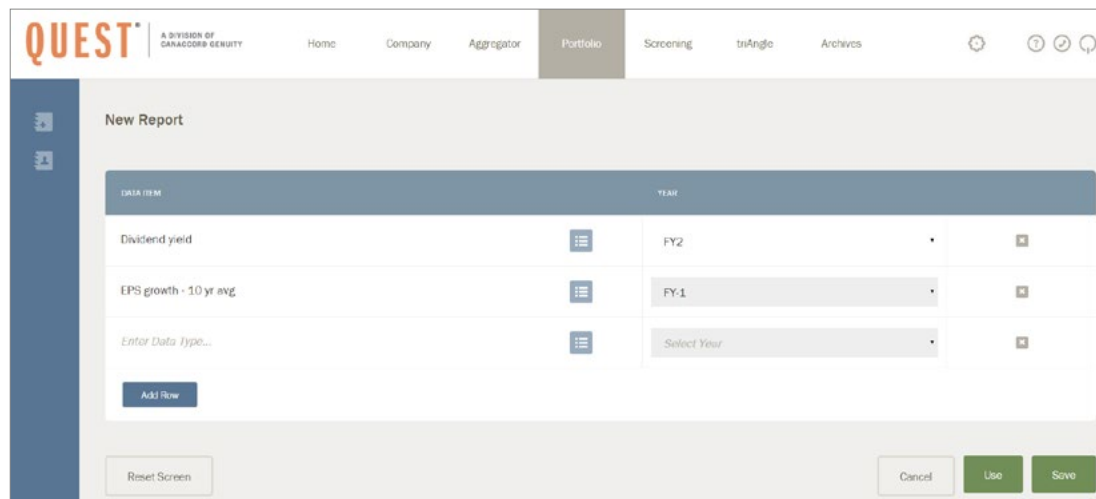
Once the list has been created, the user can select “Use Companies” or “Save Portfolio” before starting to build a report.

Once a portfolio has been built, a report can be created using the drop-down menu at the top right of the screen:



Display items can be chosen in two different ways:

1. By typing directly into the “DATA ITEM” box.
2. By clicking on the  icon to reveal a dialogue box in which available data items are grouped into “Buckets”, allowing the user to search for similar items by bucket. When all data items have been chosen, the report can be saved for future use with any portfolio.



Screening

The screening function enables the user to narrow down a universe of stocks to those that fulfill a set of chosen criteria. Selecting criteria is done in exactly the same way as for “Reports” above. For most items, a year must then be chosen:

- FY1 is the current year, FY2 next year, FY-1 last year, and so on.
- +12m is a weighted average of years to give a 12-month forward value, which allows for direct comparisons of companies with different year ends.

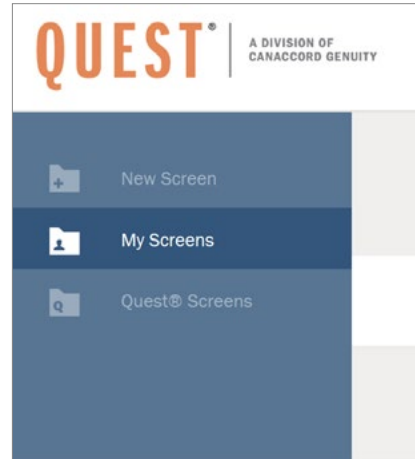
Next, a comparison has to be chosen from the drop-down menu. While mostly self-explanatory, it is worth noting that Quest[®] includes a “Display only” option for items the user wants to display but not use as screening criteria. For example, it can be useful to display market cap along with the results of a screen, in order to rank the output from largest to smallest.

In the threshold box, the user can type in the criterion limit for the particular data item. The number of matches is immediately displayed to the right, and the total matches (i.e., the number of stocks passing all criteria) are displayed below.

Finally, the screen can be further filtered by country, sector or portfolio.

Once all criteria are in place, select “Show Results” to display a report containing all the companies that have passed the screen, along with the values of the screening data items.

Clicking on “Quest[®] Screens” will take the user to a list of screens developed by the Quest[®] team; each of these has a brief description of what it aims to achieve. Some of these are looking for stocks with positive attributes (e.g. “Value with Quality filters”, “Growing value compounders”). Others look for negatives (e.g. “Expensive with weak EPS momentum”, “Value creator turning value destroyer”). At the top of the list is the Quest[®] “Screen of screens” which shows, for every company in the universe, how many of the Quest[®] screens it appears on. Saved screens can be retrieved by clicking on **My Screens**



00 Screen of screens - 8600 Screening Results

Buttons: Edit Screen, Save Screen, Action

Stocks ↓	Ticker	Sedol	Country	Industry	Market capitalisation US\$(m)	Positive screens	Negative screens	Total net screens	Deep value screen	Cheap with strong EPS momtm screen	Expensive with weak EPS momtm screen
					Display	Display	Display	Display	Display	Display	Display
					Current	Current	Current	Current	Current	Current	Current
1-800-Flowers.com	NasdaqGS:FLWS	2444123	United States	Internet and Catalog R...	704.8	0	1	-1	-	-	1
1st Source Corp	NasdaqGS:SRCE	2341818	United States	Banks	868.0	0	1	-1	-	-	1
21st Century Fox	NasdaqGS:FOXA	BBM4S08	United States	Media	55592.8	1	1	0	-	-	1
21Vianet Group	NasdaqGS:YNET	B3QJVS9	United States	Internet Software and...	1598.9	0	2	-2	-	-	1
2U	NasdaqGS:TWOU	BKWBZ20	United States	Diversified Consumer...	1454.0	0	2	-2	-	-	1
3-D Matrix	JASDAQ:7777	B6TKL09	Japan	Biotechnology	192.5	0	0	0	-	-	-
3D Systems	NYSE:DDD	2889788	United States	Technology Hardware...	1255.5	0	0	0	-	-	-
3i Group plc	LSE:III	B1YW440	United Kingdom	Capital Markets	6780.7	0	1	-1	-	-	-

QUEST®

A DIVISION OF
CANACCORD GENUITY

Question Everything.

Functionality
wins again.



CANACCORD Genuity

To us there are no foreign markets.™

Quest[®] triAngle

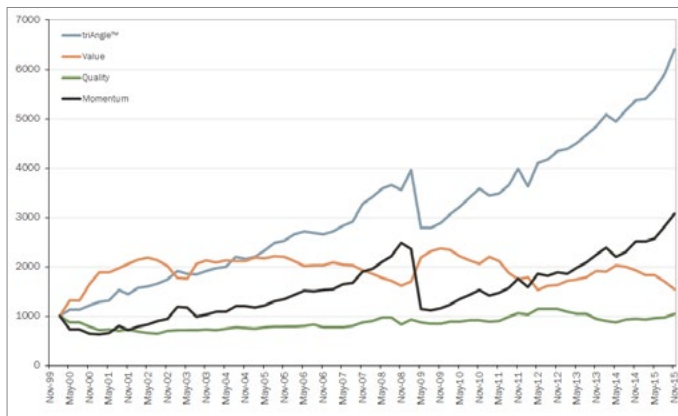
Introduction

The Quest[®] **triAngle** is Canaccord Genuity's proprietary quantitative stock-picking tool, which systematically evaluates Value, Quality and Momentum and presents the results in a simple, easy to understand graphic. Historically, we know that Momentum is the strongest of the three factors, but it can be volatile. Combining Momentum with Quality and Value produces stronger overall returns, with lower volatility.

The Quest[®] **triAngle** identifies companies that are high quality and good value and show positive earnings and share price momentum.

Launched more than 15 years ago, the UK **triAngle** has proven that this combined approach improves the reliability of returns, with the top quintile outperforming the bottom quintile by an average of 3.7% per quarter in 52 out of the last 68 quarters. The Pan-Europe **triAngle** has had similarly impressive results. It has been running for 63 quarters, of which 50 are positive. The average performance of the top quintile relative to the bottom quintile is 3.2% per quarter (see chart below).

Pan-Europe triAngle performance (February 2000 = 1000)



Historic performance

It is important to stress that historic **triAngle** performance is a *track record*, not a *back test*.

As described by Harvey and Liu in a recent paper, “Evaluating Trading Strategies” in the Journal of Portfolio Management, back tests too frequently suffer from survivorship bias, an inability to replicate historic data, and a lack of statistical rigour. By contrast, the Quest[®] **triAngle** track record is a result of stored output from 15 years of running the calculations in the Quest[®] platform.

Quest[®] triAngle Principles and Methodology

How to outperform

The theoretical appeal of the **triAngle** can be summarised as follows:

- **Value** anomalies can be expected to close over time.
- High **Quality** companies can be expected to create value over time, as high returns, compounded by growth, will generate higher Quest[®] value per share.

Therefore, both Value and Quality stocks can be expected to outperform at different points in the cycle. Value stocks tend to do better early in the cycle, while Quality tends to dominate mid and late cycle. This is where Momentum comes in to help time the investment decision.

Momentum reinforces which style is working. Since Momentum incorporates both earnings and price momentum, it helps investors to avoid some of the traps, such as stocks where either Value or Quality is temporary or an illusion.

Price Momentum can be used to enhance performance by identifying share price trends and turning points, which can improve the timing of investment decisions. Extensive back testing has shown that following Momentum is one of the most reliable and robust strategies to improve investment performance.

Momentum not only forms an important part of the Quest[®] **triAngle**, there is a dedicated Momentum page for each stock in the Quest[®] coverage universe.

A note about EPS momentum

While most Quest[®] Momentum measures focus on price moves, revisions to earnings estimates are another important indicator of news flow and sentiment, which help to identify companies that are performing above or below market expectations. Consensus EPS forecasts and revisions are included in the Quest[®] platform and EPS estimate revisions are included as one of the five Momentum measures (outlined below) in the Quest[®] **triAngle**.

Combining Value, Quality and Momentum

So, the **triAngle** addresses the three important questions we at Quest[®] ask about every stock:

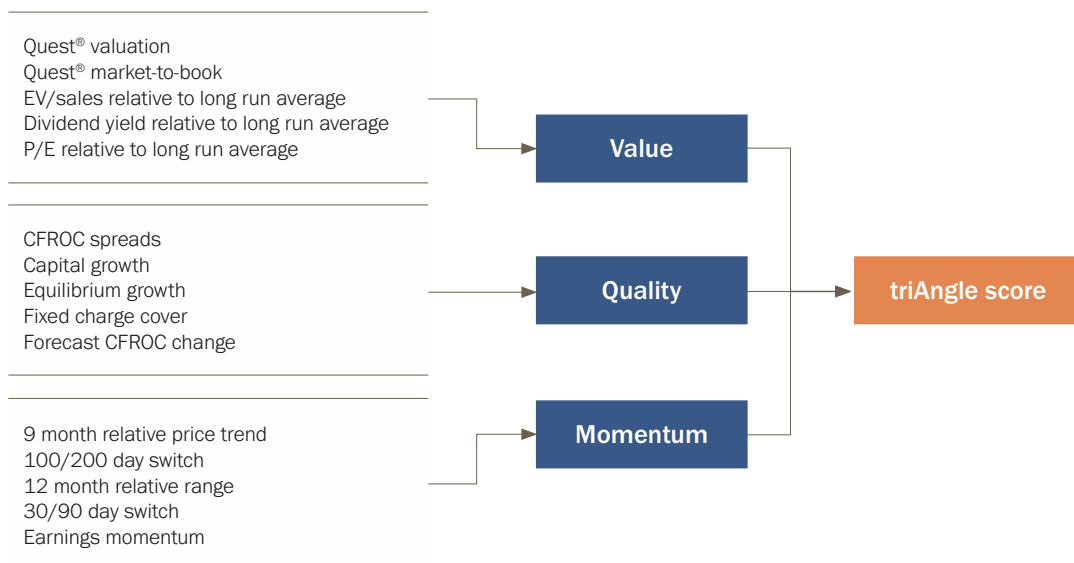
- **Quality:** Is this a good or bad company?
- **Value:** Is the stock cheap or expensive?
- **Momentum:** Is now a good or bad time to buy?

The **triAngle** track record shows that combining **Quality**, **Value** and **Momentum** improves the reliability of returns. We know that **Momentum** works most of the time and that **Value** and **Quality** work some of the time. **Combining these factors further improves the reliability of returns, with reduced volatility.**

How Quest[®] measures Value, Quality and Momentum

The Quest[®] triAngle is designed to provide broad-based measures of Value, Quality and Momentum, each consisting of five factors outlined below. This broad approach adds more consistency than reliance on one single measure, and also helps to address the issue that different factors work at different times.

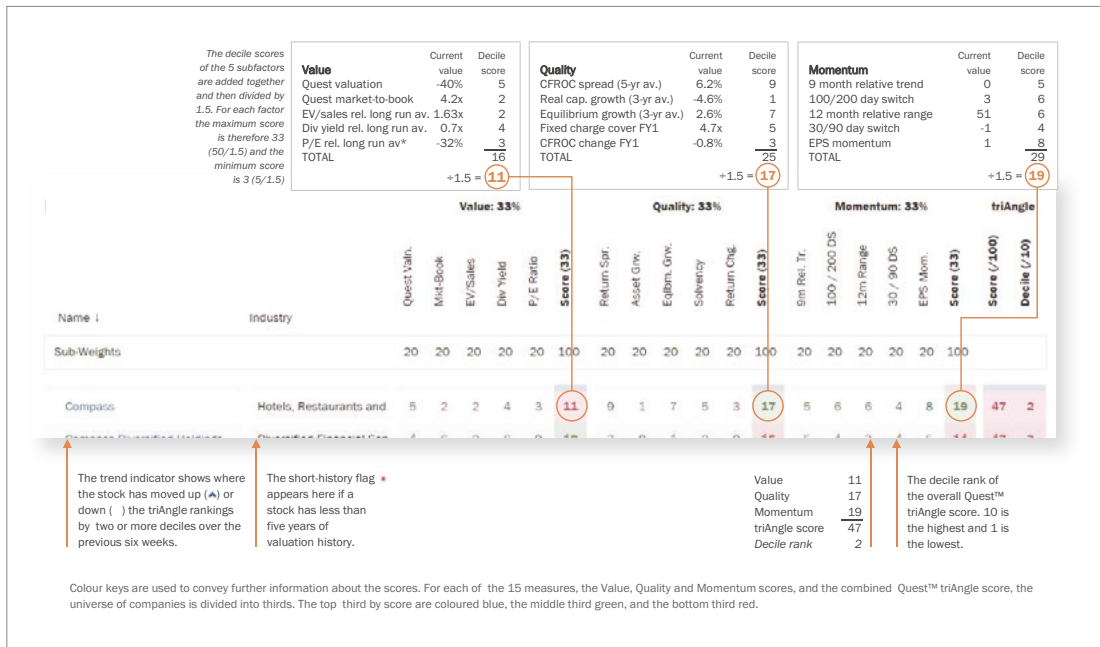
- **Value** combines Quest[®] CFROC valuation and Quest[®] market-to-book with more traditional measures of EV/sales, dividend yield and P/E.
- **Quality** measures historic corporate performance through returns (CFROC spread), growth in invested capital, and free cash flow, together with forecast changes in CFROC and fixed charge cover as a measure of solvency.
- **Momentum** evaluates share price trends through the 9-month relative trend, the 12-month relative range and the 100/200-day switch. Inflection points are seen on the short-term 30/90-day switch, and changes in consensus earnings estimates also form part of the overall Momentum picture.



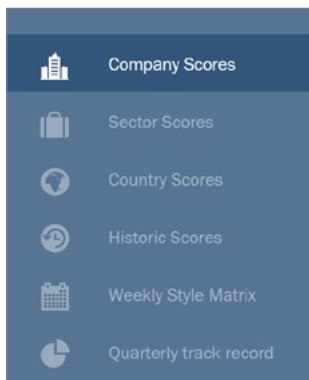
Calculating the triAngle score

For each of the 15 measures outlined above, the Quest[®] universe of companies is ranked in order from top to bottom and divided into deciles, where 10/10 is a positive signal (good or cheap) and 1/10 is a negative signal. The decile scores of the five measures for each factor (**Value**, **Quality** and **Momentum**) are then added together and divided by 1.5, giving a maximum score of 33.

The scores from the Value, Quality and Momentum are aggregated to give the total Quest[®] **triAngle** score, which has a maximum value of 100. The **triAngle** score is then ranked by decile, once again with 10 being positive and 1 being negative.

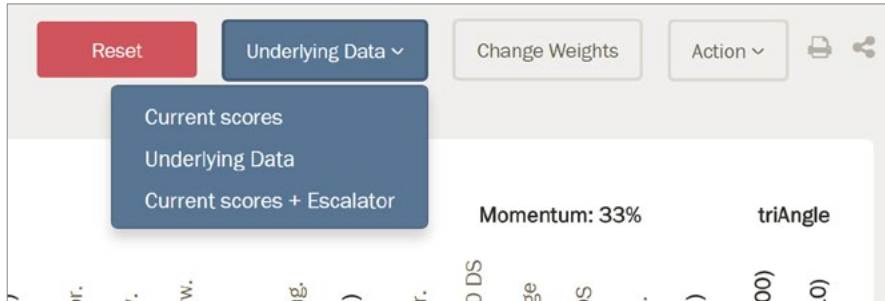


Quest® triAngle Online

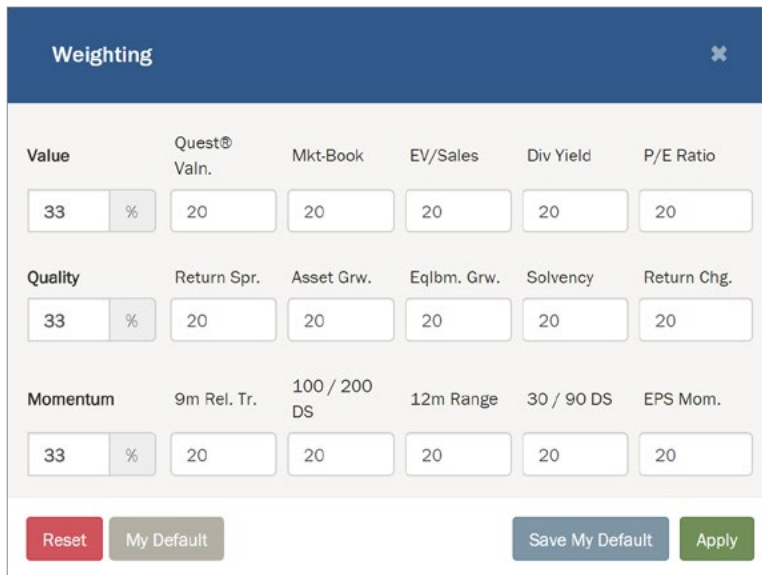


Quest® triAngle Online allows users to view the scores and ranking of individual stocks, as well as aggregated scores for countries, industries and sectors. Clicking on the triAngle button at the top of the Quest® platform reveals the current scores for all stocks in the chosen universe. A menu of further options is displayed on the left.

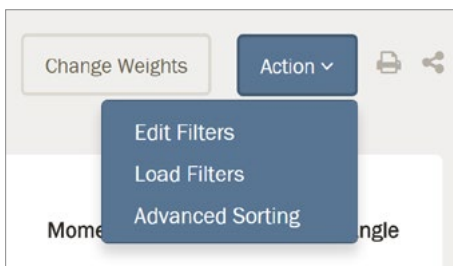
The default screen shows triAngle decile numbers. To display the underlying data, click “Current scores” at the top of the page and select “Underlying data”. Clicking “Current scores + Escalator” displays an additional row for each company showing how many deciles each factor has moved in the last week, six weeks or three months.



Over the past 15 years, the default triAngle, with equally weighted factors, has performed very well. However, there are times when users want to change the weights of the factors or sub-factors. This can be done by clicking on “Change Weights”, which launches a dialogue box like the one below:

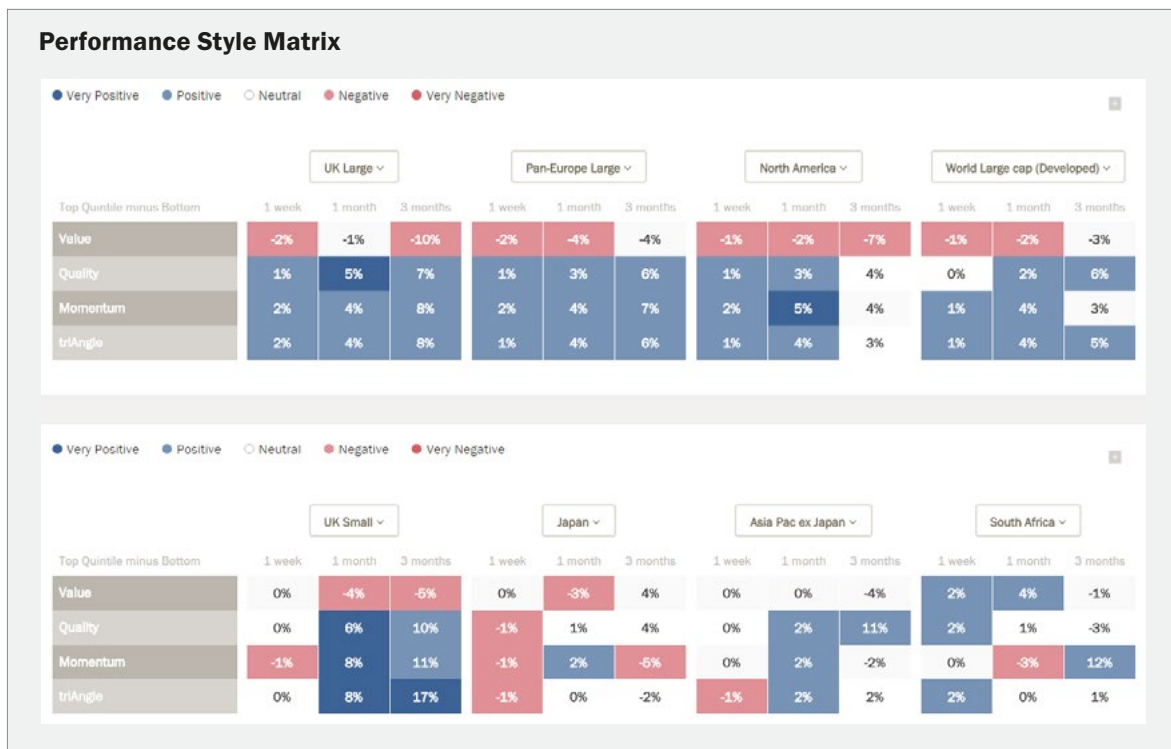


The “Action” button allows users to sort and filter the triAngle output. Filtering can be done by country or sector, or by loading a saved portfolio. Filters can also be saved for future use.

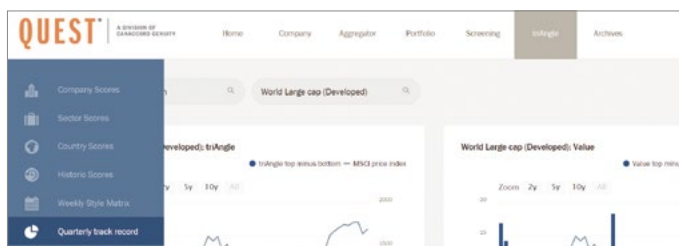


Style Matrix

The **Style Matrix**, shown below, provides an analysis of the performance of the individual triAngle factors, to help users identify and understand the main influences on share price performance and to predict future patterns. Over the past 15 years, the Quest[®] team has built up a useful history showing which styles tend to work most frequently, and those which work best at certain times.



Quarterly Track Record



The triAngle Quarterly Track Record feature provides a user-friendly way to access quarterly triAngle performance for all the regions where we have collected and stored data. It also provides a rich source of data for Fund Managers who follow a particular style, helps to explain recent style moves in the historic context, and allows users to view and compare data across multiple regions. A [separate guide to this feature](#) is available on the Quest help page.

Quest[®] Publications

CITN – Companies in the News

Companies in the News (CITN) is a weekly commentary written by Quest[®] analysts and sales professionals. Supported by the rigorous analysis and valuation framework of Quest[®], CITN presents ideas on investing strategy (market themes, market valuation, sector preferences, etc.) alongside individual stock recommendations, to articulate interesting investment cases for clients.

Quest[®] Sector Chart Books

Using a standard format of tables and charts, with insightful commentary and annotations to highlight features and developments of interest, Quest[®] **Sector Chart Books** examine the market sector by sector. Each book is prefaced by an article containing valuable commentary from Quest[®] analysts.

Quest[®] Sector Chart Books are currently available in three editions: **UK**, **Europe** and **Global**.

Quest[®] triAngle Escalator

Over the years, the **Quest[®] triAngle Escalator** has proven to be a fertile source of new investment ideas. By highlighting companies that are moving up and down in the **triAngle** rankings, the **Quest[®] triAngle Escalator** helps investors identify stocks that are becoming more or less attractive. Published weekly, **Quest[®] triAngle Escalator** includes a short commentary to highlight some of the more interesting moves.

Question Everything.



20 years of knowing
what you're looking for.

Appendices

GICS (Global Industry Classification Standard)

Effective after close of business (US, EST) Friday, February 28, 2014

SECTOR	INDUSTRY GROUP	INDUSTRY	SUB-INDUSTRY		
Energy	Energy	Energy Equipment & Services	Oil & Gas Drilling		
			Oil & Gas Equipment & Services		
		Oil, Gas & Consumable Fuels	Integrated Oil & Gas		
			Oil & Gas Exploration & Production		
			Oil & Gas Refining & Marketing		
			Oil & Gas Storage & Transportation		
			Coal & Consumable Fuels		
		Materials	Materials	Chemicals	Commodity Chemicals
					Diversified Chemicals
Fertilizers & Agricultural Chemicals					
Industrial Gases					
Specialty Chemicals					
Construction Materials	Construction Materials				
Containers & Packaging	Metal & Glass Containers				
	Paper Packaging				
Metals & Mining	Aluminum				
	Diversified Metals & Mining				
	Gold				
	Precious Metals & Minerals				
	Silver				
	Steel				
Paper & Forest Products	Forest Products				
	Paper Products				
Industrials	Capital Goods			Aerospace & Defense	Aerospace & Defense
		Building Products	Building Products		
		Construction & Engineering	Construction & Engineering		
		Electrical Equipment	Electrical Components & Equipment		
			Heavy Electrical Equipment		
		Industrial Conglomerates	Industrial Conglomerates		
		Machinery	Construction Machinery & Heavy Trucks		
			Agricultural & Farm Machinery		
			Industrial Machinery		
	Trading Companies & Distributors	Trading Companies & Distributors			
	Commercial & Professional Services	Commercial Services & Supplies	Commercial Printing		
			Environmental & Facilities Services		
			Office Services & Supplies		
			Diversified Support Services		
Security & Alarm Services					
Professional Services			Human Resource & Employment Services		
	Research & Consulting Services				

SECTOR	INDUSTRY GROUP	INDUSTRY	SUB-INDUSTRY			
Industrials (cont'd)	Transportation	Air Freight & Logistics	Air Freight & Logistics			
		Airlines	Airlines			
		Marine	Marine			
		Road & Rail	Railroads Trucking			
		Transportation Infrastructure	Airport Services Highways & Railtracks Marine Ports & Services			
		Consumer Discretionary	Automobiles & Components	Auto Components	Auto Parts & Equipment Tires & Rubber	
				Automobiles	Automobile Manufacturers Motorcycle Manufacturers	
			Consumer Durables & Apparel	Household Durables		Consumer Electronics Home Furnishings Homebuilding Household Appliances Housewares & Specialties
						Leisure Products Leisure Products
						Textiles, Apparel & Luxury Goods
	Apparel, Accessories & Luxury Goods Footwear Textiles					
	Hotels, Restaurants & Leisure					
Consumer Services			Casinos & Gaming Hotels, Resorts & Cruise Lines Leisure Facilities Restaurants			
	Diversified Consumer Services		Education Services Specialized Consumer Services			
Media	Media			Advertising Broadcasting Cable & Satellite Movies & Entertainment Publishing		
		Retailing	Distributors	Distributors		
			Internet & Catalog Retail	Catalog Retail Internet Retail		
			Multiline Retail	Department Stores General Merchandise Stores		
			Specialty Retail	Apparel Retail Computer & Electronics Retail Home Improvement Retail Specialty Stores		
Automotive Retail Homefurnishing Retail						
Consumer Staples	Food & Staples Retailing	Food & Staples Retailing				
		Drug Retail Food Distributors Food Retail Hypermarkets & Super Centers				

SECTOR	INDUSTRY GROUP	INDUSTRY	SUB-INDUSTRY	
Consumer Staples (cont;d)	Food, Beverage & Tobacco	Beverages	Brewers Distillers & Vintners Soft Drinks	
		Food Products	Agricultural Products Packaged Foods & Meats	
		Tobacco	Tobacco	
	Household & Personal Products	Household Products Personal Products	Household Products Personal Products	
	Health Care	Health Care Equipment & Services	Health Care Equipment & Supplies	Health Care Equipment Health Care Supplies
			Health Care Providers & Services	Health Care Distributors Health Care Services Health Care Facilities Managed Health Care
Health Care Technology			Health Care Technology	
Pharmaceuticals, Biotechnology & Life Sciences			Biotechnology Pharmaceuticals Life Sciences Tools & Services	Biotechnology Pharmaceuticals Life Sciences Tools & Services
Financials		Banks	Banks	Diversified Banks Regional Banks
			Thrifts & Mortgage Finance	Thrifts & Mortgage Finance
		Diversified Financials	Diversified Financial Services	Other Diversified Financial Services Multi-Sector Holdings Specialized Finance
			Consumer Finance	Consumer Finance
			Capital Markets	Asset Management & Custody Banks Investment Banking & Brokerage Diversified Capital Markets
			Insurance	Insurance
	Real Estate	Real Estate Investment Trusts (REITs)	Diversified REITs Industrial REITs Mortgage REITs Hotel & Resort REITs Office REITs Health Care REITs Residential REITs Retail REITs Specialized REITs	
			Real Estate Management & Development	Diversified Real Estate Activities Real Estate Operating Companies Real Estate Development

SECTOR	INDUSTRY GROUP	INDUSTRY	SUB-INDUSTRY
Information Technology	Software & Services	Internet Software & Services	Internet Software & Services
		IT Services	IT Consulting & Other Services
			Data Processing & Outsourced Services
		Software	Application Software
			Systems Software
			Home Entertainment Software
	Technology Hardware & Equipment	Communications Equipment	Communications Equipment
		Technology Hardware, Storage & Peripherals	Technology Hardware, Storage & Peripherals
		Electronic Equipment, Instruments & Components	Electronic Equipment & Instruments
			Electronic Components
		Electronic Manufacturing Services	
		Technology Distributors	
	Semiconductors & Semiconductor Equipment	Semiconductors & Semiconductor Equipment	
		Semiconductor Equipment	
Telecommunication Services	Telecommunication Services	Diversified Telecommunication Services	Alternative Carriers
			Integrated Telecommunication Services
		Wireless Telecommunication Services	Wireless Telecommunication Services
Utilities	Utilities	Electric Utilities	Electric Utilities
		Gas Utilities	Gas Utilities
		Multi-Utilities	Multi-Utilities
		Water Utilities	Water Utilities
		Independent Power and Renewable	Independent Power Producers & Energy Traders
		Electricity Producers	Renewable Electricity

Cost of Capital

Quest[®] has always used the capital asset pricing model (CAPM) to calculate cost of capital. This has not changed in the latest update.

$$WACC = (\text{weight of equity} \times \text{cost of equity}) + (\text{weight of debt} \times \text{cost of debt})$$

The Quest[®] model values companies based on forecast real post-tax cash flows available to all providers of finance. Therefore, the cost of capital used to compare returns and to discount future cash flows is calculated on the same basis. (i.e., a real post-tax cost of capital).

With the software rewrite, we have taken the opportunity to review the academic literature and empirical evidence. This has led us to make some changes to (a) the risk-free rate, (b) the equity risk premium used to calculate the cost of equity, and (c) the corporate risk premium used to calculate the cost of debt.

We have also added a country risk premium to emerging markets equities, which are being included in Quest[®] for the first time.

We use long-term averages for our variables, to reflect the long-term nature of the equity cash flows we are valuing, and also to look through temporary distortions such as the TMT bubble and QE. For the equity risk premium, we have looked at Dimson, Marsh & Staunton, Jeremy Siegel, Aswath Damodaran and the Barclays Equity Gilt Study. Some of these studies go back 100 years or more. Our betas are five-year moving averages. Our risk-free rate is based on Duff & Phelps, Damodaran, and our own analysis of the US TIPS and UK index-linked markets.

Risk-free rate

We use a constant 2.0% as our estimate of the real risk-free rate (Rf), a reduction from the 2.5% we used in Quest[®] 1.0. Even before the distortions created by the recent financial crisis, it is clear that the real risk-free rate has been falling since the 1980s. A 20-year average of real 10-year bond yields in the US, UK, Germany and Japan now stands at 2.0%.

Cost of equity

CAPM states that the cost of equity (Ke) is based on a risk-free rate plus a premium for the risk of investing in equities.

$$K_e = R_f + (\text{Beta} \times \text{Equity Risk Premium})$$

The beta is a forecast of a stock's sensitivity to the market. For the stock's beta we use an average ungeared beta of all of the stocks in the GICS industry. (An average is used in order to eliminate outlier values and to ensure that broadly comparable companies have a similar cost of equity.) We then re-gear the beta for individual companies based on their own level of gearing.

The equity risk premium reflects the riskiness of investing in equities and in recent years has been the subject of much debate. In the new Quest[®] model we use an equity risk premium of 4.0%, which is in line with the long-term rate observed in most of the academic literature. (From 2008 to 2014, we used a 5.0% premium to reflect heightened risk aversion when the financial crisis struck.)

For our 14 emerging markets we have added a country risk premium of 1%. Typically, CDS spreads in these markets are 1% to 2% higher than in developed markets. Back testing our model has led us to the lower end of this range.

Cost of debt

The CAPM states that the cost of debt, Kd, is based on a risk-free rate, and increased for the additional risk of corporate default (credit risk).

$$K_d = R_f + \text{corporate risk premium}$$

The real risk-free rate (Rf) is 2.0%, as explained above.

The company-specific risk premium is determined by the size and financial strength of the company, with larger companies' credit spreads being lower than those of smaller companies, and well-

financed companies' credit spreads being lower than financially geared ones. In the latest Quest[®] update, rather than use a single measure of financial strength (for example interest cover, which was used in the previous version of Quest[®]), we use our proprietary Q-score which combines four metrics: strength and stability of returns, fixed charge cover and current ratio, all of which are typically assessed by banks when making lending decisions. Q-score has stood the test of time, so we know it to be a very robust indicator of financial strength.

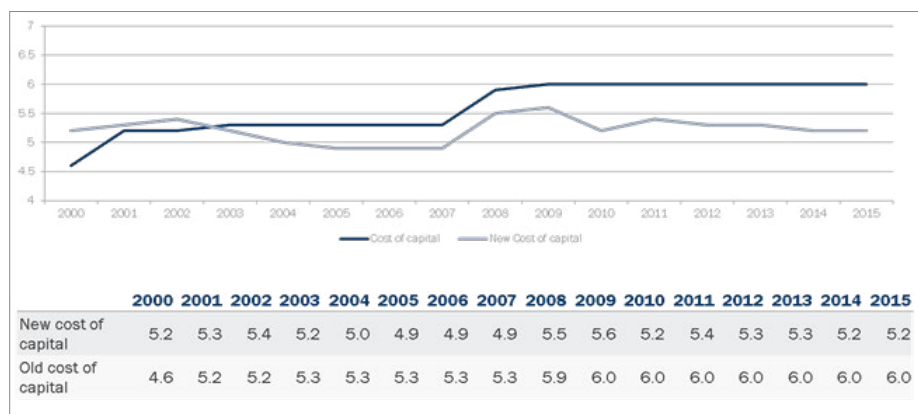
By combining size and Q-score, we arrive at a credit score for every company in the database; larger companies have a higher score than smaller ones, and well-financed companies score higher than financially geared ones. The credit score is then linked to spreads observed in the market for AAA, AA, A, BBB, BB, B and high yield ratings. A credit score of 7 is AAA, 6 is AA, etc. For intermediate credit scores (e.g., 6.4), Quest[®] interpolates between the spreads either side.

The post-tax cost of debt is calculated by deducting a tax shield valued at the company's marginal tax rate (defined as the corporate tax rate in its country of incorporation). We also treat operating leases as debt obligations: these are capitalised and added to gross debt.

Weighted average cost of capital (WACC)

The cost of debt and cost of equity are then weighted according to their proportion of funding, to arrive at a weighted average real post-tax cost of capital.

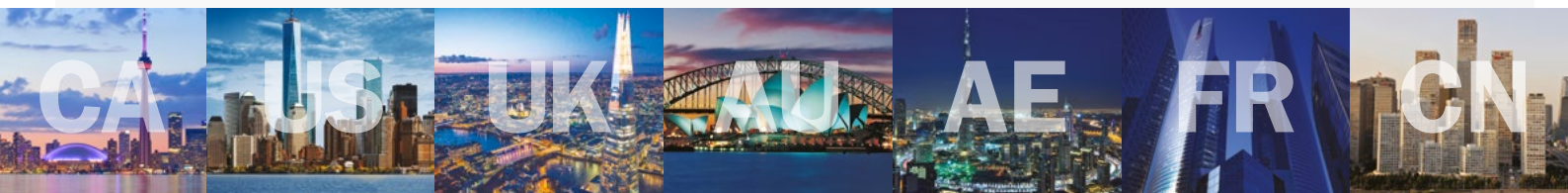
The chart shows the difference in the cost of capital between the two methodologies for the “World Large Cap Developed” universe. While the current difference of 90 bp may seem large, it should be remembered that we have made some other improvements to the model (see separate document for details). The upshot is that for this universe of stocks, the aggregate Quest[®] default valuation has only moved by 3%.



A leading independent investment bank with a global presence. With offices in Canada, the US, the UK, Europe, the Middle East and Asia Pacific and the ability to list companies on 10 exchanges worldwide, we take pride in our ability to deliver a genuinely global perspective and opportunities to grow the value of businesses and investments. We are committed to building lasting client relationships, generating innovative ideas and delivering value for clients throughout the business life cycle. | canaccordgenuity.com

To us there are no foreign markets.™

CANACCORD|Genuity



INVESTMENT BANKING | RESEARCH | SALES & TRADING | FIXED INCOME

Canaccord Genuity Corp. 2016. – Member IIROC/Canadian Investor Protection Fund
Canaccord Genuity Limited 2016. – Member of the London Stock Exchange, authorized and regulated by the Financial Conduct Authority
Canaccord Genuity Inc. 2016. – Member FINRA/SIPC
Canaccord Genuity (Australia) Limited 2016. – Authorized and regulated by ASIC