EDITORIAL

What with Western economies finally showing concrete signs of emerging from the depths of the 2008-2009 recession (two good examples: US GDP growth rates at 3% quarter-on-quarter and UK economic output back to a level above that recorded in 2008), central banks are remembering again their monetary policy mandate and, ever so slowly, thinking about inflation and interest rates.

This was always going to be a snail’s pace process. When one has doves such as Janet Yellen and Mark Carney at the helm, and Mario Draghi promising to do whatever it takes to stabilise the eurozone (it’s so much easier to spend other people’s money), it was always apparent that the ‘Big 3’ central banks were never going to even start to remove policy accommodation until they were absolutely certain that economic growth was here to stay – at least for the next few years, at any rate. (Not that it has ever been an official mandate of any of them to conduct monetary policy only when strong and sustainable growth was being recorded. The preservation of the value of their country’s currency, on the other hand, is part of their official mandate, and in the case of the Bank of England its only publicly stated objective. Quite how several years of zero interest rates, trillions in money-printing and continuous rounds of three-year funding for low-quality collateral squares with the money preservation mandate is beyond me. For those interested in the implications of this new approach to central banks, I heartily recommend Professor Dimitris Chorafas’s excellent and incisive book The Changing Role of Central Banks.

But now even the doves recognise and accept that interest rates will start to rise in 2015, in the US and UK at least, and most likely in 2016 in the eurozone. So investors and traders alike are exercising their minds with the question: in the era of ‘new-normal’ what will the interest-rate cycle look like? What is the peak rate this time around? This is an important question, because the answer (or surmised answer) will influence all manner of investment and capital budgeting decisions. How much more likely would you be to take out a mortgage if you knew that central bank interest rates over the next five to seven years were never going to exceed 3.5%, as opposed to 6.5%?

Forecasters are hindered by the peculiar circumstances surrounding monetary policy-setting around this time around, more or less without precedent. The chart shows the US dollar five-year implied forward rate over the last seven years, derived from the spread between five-year and ten-year US Treasury bond yields. It is difficult to draw firm conclusions from it. At the moment the graph appears to suggest that around 3.5% will be the top of the cycle this time around, and this is not a bad surmise for both US dollar and sterling interest rates. But look closely at the chart and it reveals an unsurprising feature: as economic sentiment picks up, so does the implied base rate in five years’ time; as sentiment turns negative so do rate expectations. In other words, as the positive market statistics we are observing on both sides of the Atlantic continue to remain positive, be they related to unemployment, inflation, house prices or GDP growth, then interest rate expectations will get more bullish. The 5% peak base rate implied at the turn of 2009-10, just before the eurozone Grexit crisis befell us, should return.

This quarter we’re pleased to bring you three diverse and wide-ranging but very topical articles on different aspects of the markets. Messrs Stewart and Thompson present a renewed look at the ‘Dogs of the Dow’ strategy for fund management made popular at the turn of the century, but find no strong evidence arguing for its renewed inclusion in current practice. Rob Fullman on the other hand has considered a completely novel approach, the application of Quality Function Deployment technique, a common practice in engineering, to investment management. An hypothetical application exercise suggests such a technique may carry some value. Finally Dr Edward Bace has looked at large banks’ conduct risk costs and share price performance, and the results are notable if not necessarily conclusive. They are also, to an extent, counterintuitive: spend more on conduct risk practices, for instance, and your financial results should improve. This finding is worthy of further investigation.

I hope you enjoy this issue.

Professor Moorad Choudhry FCSI, Editor

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ABSTRACT

Slatter (1988) first brought to prominence a ‘Dogs of the Dow’ investment and equity selection strategy, attributing it with impressive claims of market outperformance. Subsequent popularisation by O’Higgins and Downes (1991, 2000) and Knowles and Petty (1992) added to the strategy’s appeal in the investment community. Academic attention has been relatively limited, and not entirely supportive, as to the veracity of these claims, particularly after consideration of taxes and transaction costs. This paper re-examines the ‘Dogs’ strategy based on FTSE100 and FT30 stocks in the previously unexamined 2000-2012 period during which time there was much turbulence in the markets. This period encompassed the ‘dotcom’ bubble of 2000-2002, the financial crisis of 2008 and on and the period of strong economic growth of the mid-2000s. Our results are not supportive of statistically or economically significant residual returns.

LITERATURE REVIEW

Original development

Slatter’s original ‘Dogs’ strategy (1988) was popularised in the Wall Street Journal article of that year which outlined his basic proposal: select an equally weighted portfolio comprising the ten highest-yielding Dow Jones Industrial Average (DJIA) listed stocks which would be held for one calendar year after which, on each anniversary of the portfolio formation, both the portfolio and the DJIA list would be re-examined and rebalanced to include the then highest-yielders from the Dow listing. The ‘Dogs’ strategy itself is predicated on the notion that DJIA companies are reluctant to cut their dividends and that the high-yield measure simply identifies the temporarily unfavourable stocks whose prices had temporarily fallen. Slatter claimed that this strategy had produced returns in excess of the DJIA index by an average 7.6% per annum in the period from 1972-1988 and these claims were followed up with similarly impressive claims by O’Higgins and Downes (1991, 2000) and Knowles and Petty (1992) who suggested equally impressive potential for this investment strategy. O’Higgins and Downes (2000) further suggested complementary strategies involving five and single stock portfolios which they claimed had the potential to produce similarly impressive returns. These expositions consistently claimed that a ‘Dogs’ strategy had the potential to systematically outperform the Dow but did suffer the obvious weakness that the claims were based on naive non-risk-adjusted returns which did not account for taxes and transaction costs. Inevitably, Slatter’s strategy attracted academic attention.

US studies

McQueen, Shields and Thornley (1997) examined Dow stocks from 1946-1995 and concluded that the ‘Dogs’ strategy outperformed the market index by 3.06% on average. However, they found that when significant rebalancing costs and taxes were factored in to their results, this apparent abnormal return evaporated and, further, when their 50-year test period was broken down into ten-year sub-periods, the ‘Dogs’ strategy dominated the market in only two out of five sub-periods. Examining a similar period, Domain, Louton and Mossman (1998) applied a ‘Dogs’ strategy to Dow listed stocks from 1964-1997, but compared performance relative to the S&P500 index. This study concluded that the ‘Dogs’ strategy outperformed the S&P index by an average of 4.8% per annum. Domain et al went further and examined portfolio performance in the 12 months before portfolio formation and found that their portfolios had underperformed the index by an average 3.7%. They concluded that this finding (and the apparent ‘Dogs’ outperformance) may have been due to the so-called ‘winner-loser’ effect proposed by De Bondt and Thaler (1985). These studies were closely followed by Hirschey (2000) who examined the ‘Dogs’ strategy on US stocks from 1961-1998, but found only a modest average annual outperformance of 1.8% which disappeared after accounting for taxes and transaction costs. Hirschey also documented significant periods during which the ‘Dogs’ strategy distinctly underperformed the market and concluded that the results of previous studies may have been the result of judicious selection of the time periods chosen for examination.

International studies

Visscher and Filbeck (2003) examined the ‘Dogs’ strategy on stocks drawn from the Canadian market (Toronto-35 index) from 1988-1997. In contrast to the US studies, they concluded that this strategy produced significant annual average abnormal returns of 6.62% and that these were returns which higher tax and transaction costs would not dissipate.

In the UK, Filbeck and Visscher (1987) examined FTSE100 companies from 1985-1994 and concluded that the ‘Dogs’ strategy had actually underperformed the market index by an annual average of 2.10% during this time and had, in fact, outperformed the market in only four out of ten years. Ap Gwilym, Seaton and Thomas (2003) conducted a more extensive study of the ‘Dogs’ strategy applied to stocks of the FT30, FTSE100, FTSE250 and FTSE300 from 1980-2001. The results of this work concluded that the modest annual outperformance would not compensate for higher risk, tax and transaction costs necessitated by this strategy. Clearly, on the basis of this small sample of studies, results suggest that the ‘Dogs’ strategy is not effective in UK markets. In another European study, Rinne and Vahamaa (2011) examined a ‘Dogs’ strategy on Finnish-listed stocks from 1988-2008 and found that, while such a strategy may be profitable in the Finnish market, it may not be economically significant after accounting for taxes and transaction costs.

Da Silva (2001) conducted an extensive study of the ‘Dogs’ strategy in a range of South American markets from 1994-1999. These results suggested that such a strategy had underperformed the Brazilian market during this time and had only very modestly outperformed in other South-American markets. In Asian markets, Chong and Luk (2010) examined a high-yield portfolio (‘Dogs’) investment strategy from 1992-2007 in both the Hong Kong and Hang Seng markets where they found evidence of underperformance of this strategy in the Hong Kong stock market but positive returns to the strategy when applied to constituents of the Hang Seng index, concluding that the ‘Dogs’ strategy may be more applicable to ‘blue chip’ companies.

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LITERATURE SUMMARY

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Market/data (benchmark)</th>
<th>Period</th>
<th>Results</th>
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<tr>
<td>US-focused studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McQueen, Shields and Thornley (1997)</td>
<td>Dow Jones (DJIA)</td>
<td>1946-95</td>
<td>AAR +3.1%. Becomes insignificant when taxes and transaction costs are applied.</td>
</tr>
<tr>
<td>Hirshey (2000)</td>
<td>Broad US market data</td>
<td>1961-98</td>
<td>AAR +1.8%. Becomes insignificant when taxes and transaction costs are applied.</td>
</tr>
<tr>
<td>UK-focused studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filbeck and Visscher (1987)</td>
<td>FTSE 100 Listed</td>
<td>1985-94</td>
<td>AAR -2.1%</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Da Silva (2001)</td>
<td>Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela</td>
<td>1994-99</td>
<td>AAR -4.26% (Brazilian), insignificant outperformance in other markets.</td>
</tr>
</tbody>
</table>

AAR: Average (annual) Abnormal Returns

METHODOLOGY

Our study examines FTSE100 and FT30 companies from 2000-2012 inclusive, the data for the study being derived from Datastream. This time period was specifically chosen since it had not been previously examined and it included the market turbulence associated with the 'dotcom bubble', the strong economic growth of the mid-2000s and the financial crisis of 2008 and later. Portfolios of stocks were drawn from the 'blue chip' FTSE100 and FT30 list, reflecting Slater's original proposal which had very large cap companies in mind. We apply strictly Slater's methodology and identify the ten highest-yielding stocks listed on the FTSE100 (FT30) and compare the performance of the subsequently formed portfolios against an index of market performance which included price and dividend-based returns of the constituent companies listed on the FTSE100. Each (FTSE 100 and FT30)

portfolio was held for one year at which time the value of the portfolio (and dividends receipts during the year) were used to calculate the return on the portfolio (ie, portfolio returns constitute both capital gain and dividend yield). Dividend receipts themselves were not deemed to have been reinvested during the year but, rather, they were used to fund any necessary rebalancing of the portfolio when the above process was repeated on each subsequent anniversary of the original portfolio formation.

Abnormal returns are scrutinised using a range of metrics. The first measure (AR1) is a simple market-adjusted return where AR1 is the return for the 'Dogs' portfolio and R_market is the return on the market index.

\[
AR_1 = \frac{R_{Dogs} - R_{Market}}{\beta (R_{Market} - R_f)}
\]

The second measure of (abnormal) return (AR2) is calculated by applying the market model, defined below, where \( R_f \) is the risk-free rate and the portfolio beta is given by \( \beta \).

\[
AR_2 = \frac{R_{Dogs} - R_f}{\beta (R_{Market} - R_f)}
\]

The final measure of (abnormal) return (AR3) is the Modigliani-squared (M^2) adjustment where portfolio excess returns are scaled by relative portfolio and market volatility and compared with excess-market return.

\[
AR_3 = \left( R_{Dogs} - R_f \right) x \left( \frac{\sigma_{Market}}{\sigma_{Dogs}} \right) x \left( R_{Market} - R_f \right)
\]

Where relevant, all parameters in the above models are estimated based on returns in the previous 36 months prior to the formation of the portfolio. The statistical significance of our results is tested using standard parametric tests and subject to further scrutiny using the Sharpe Ratio (considering return relative to total risk) and Treynor ratio (considering return relative to systematic risk – beta).

<table>
<thead>
<tr>
<th>Year</th>
<th>R_{Dogs}</th>
<th>R_{Market}</th>
<th>AR1</th>
<th>AR2</th>
<th>AR3</th>
<th>AR1/\sigma</th>
<th>AR2/\sigma</th>
<th>AR3/\sigma</th>
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<tr>
<td>2000</td>
<td>0.020</td>
<td>0.010</td>
<td>0.010</td>
<td>0.010</td>
<td>0.010</td>
<td>0.020</td>
<td>0.010</td>
<td>0.010</td>
</tr>
<tr>
<td>2001</td>
<td>0.010</td>
<td>0.000</td>
<td>0.010</td>
<td>0.010</td>
<td>0.010</td>
<td>0.010</td>
<td>0.010</td>
<td>0.010</td>
</tr>
<tr>
<td>2002</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 1 - Annual Returns for the ‘Dogs’ Investment/Portfolio Selection Strategy.

This table reports the annual returns on the ‘Dogs’ investment strategy (R_{Dogs}) calculated as the returns on an equally weighted portfolio of the ten highest yielding FTSE100 stocks. AR1, AR2, and AR3 are described above.

Table 1 reports the annual ‘Dogs’ portfolio returns, market returns and the abnormal returns using the previously defined return measures AR1 – AR3, for both the ten-stock portfolio drawn from the FTSE100 list and the FT30 list.

‘FTSE 100’ portfolio

In the ordinary sense of the word, both the mean and median portfolio return are significantly larger than both the mean and median market return (R_{Market}) for this portfolio. Depending on the return measure used (AR1 – AR3), the mean abnormal return ranges from 8.25% - 8.94% and produces positive abnormal returns in eight to nine years out of the 13 years examined. The significance of the main risk-adjusted returns are consistent in that the AR3
and AR, abnormal returns are statistically significant at the 5% level in a two-tailed test. Of course, this inference is somewhat limited given that only 13 years returns are under consideration and, further, it must be borne in mind that these results are heavily influenced by ‘outlier’ results in 2000 and, to a degree, 2001. In particular, the result for 2000 is highly statistically significant and if this year is not considered, any statistical significance in the residual results largely evaporates and only AR retains some significance (at the 10% level).

FT30’ portfolio

In contrast to the ‘FTSE100 portfolio’, both the mean and median portfolio returns (again in the ordinary sense of the word) are not significantly different than those of the market. The mean abnormal return ranges from 3.59% -5.23% and produces positive abnormal returns in nine to ten years. However, somewhat consistent with the ‘FTSE100 portfolio’, the AR, measure is significant at the 10% level while the AR, measure is significant at the 5% level. Again, it is interesting to note that these results are heavily influenced by stronger performance to this strategy from 2004-2006, without which, once again, the statistical significance of our results is largely absent for all abnormal return measures.

In order to ameliorate the effects of a relatively small data population used in our analysis, we turned our attention to monthly returns, reported in Table 2, for the portfolios drawn from both the FTSE100 and FT30 lists. The relative incidence of the number of positive monthly returns is low (in a range from 54%-58% of monthly observations) and, interestingly, none of the monthly risk adjusted abnormal return measures (AR, AR,) retain statistical significance in a two-tailed test and, overall, the results of an analysis of monthly returns clearly do not lend support to a ‘Dogs’ investment strategy.

Table 2 - Monthly Risk-Adjusted Abnormal Returns for the ‘Dogs’ Investment/ Portfolio Selection Strategy

<table>
<thead>
<tr>
<th></th>
<th>FTSE100</th>
<th>FTSE100</th>
<th>FTSE100</th>
<th>FTSE100</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Portfolio</td>
<td>Market</td>
<td>Sharpe Ratio</td>
<td>Market</td>
</tr>
<tr>
<td>Mean</td>
<td>0.64%</td>
<td>0.70%</td>
<td>0.32%</td>
<td>0.43%</td>
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<tr>
<td>Median</td>
<td>0.45%</td>
<td>0.66%</td>
<td>0.41%</td>
<td>0.28%</td>
</tr>
<tr>
<td>Minimum</td>
<td>-14.01%</td>
<td>-9.72%</td>
<td>-17.95%</td>
<td>-10.47%</td>
</tr>
<tr>
<td>Maximum</td>
<td>75.66%</td>
<td>72.38%</td>
<td>25.52%</td>
<td>15.72%</td>
</tr>
<tr>
<td>Number of Positive Months</td>
<td>55</td>
<td>90</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Significance</td>
<td>Not significant</td>
<td>Not significant</td>
<td>Not significant</td>
<td>Not significant</td>
</tr>
</tbody>
</table>

Table 3 – Sharpe and Treynor Ratios for the ‘Dogs’ Investment Strategy (FTSE100 Portfolio)

This table reports the Sharpe and Treynor ratios for the ‘FTSE100’ portfolio and the market in years 2000-2012. The Sharpe ratios are calculated as the excess portfolio (market) return relative to portfolio (market) volatility. The Treynor ratios are calculated as the excess portfolio (market) return relative to portfolio (market) systematic risk. The significance reported is that of the difference between the mean Sharpe (Treynor) ratios of the portfolio relative to those of the market.

Table 4 – Sharpe and Treynor Ratios for the ‘Dogs’ Investment Strategy (FT30 Portfolio)

This table reports the Sharpe and Treynor ratios for the ‘FT30’ portfolio and the market in years 2000-2012. The Sharpe ratios are calculated as the excess portfolio (market) return relative to portfolio (market) volatility. The Treynor ratios are calculated as the excess portfolio (market) return relative to portfolio (market) systematic risk. The significance reported is that of the difference between the mean Sharpe (Treynor) ratios of the portfolio relative to those of the market.

Taxes and transaction costs

A common subsequent criticism is that when subject to taxes and transaction costs, returns lose their statistical and economic significance. We have noted, in the round, very weak statistical significance with respect to our risk-adjusted abnormal return measures (ie, AR, and AR). We now turn our attention to an assessment of the economic significance of the excess portfolio returns.

Transaction costs

Transaction costs are inherently involved in replacing stocks which no longer meet the ‘Dogs’ criteria and in rebalancing the portfolio on each anniversary of its formation. We consider (i) the average number of stocks replaced
per annum and (ii) assume that of the stocks not requiring disposal, not all stocks will appreciate at the same rate and so there will be an element of partial disposal/acquisition so as to return the portfolio to one where the investment in the ten stocks is equally weighted. For simplicity we assume normally distributed long-run capital gains requiring half the balance of stocks (not disposed) to be rebalanced each year. Lastly, we assume a conservative transaction cost of 1%. This gives the following average annual return penalties for both the FTSE100 and FT30 portfolios:

**FTSE100 Portfolio:** average annual stock turnover (54%) x transaction cost (1%) + [half of the balance of stocks requiring rebalancing (46% x ½) x transaction cost (1%)] = 0.54% + 0.23% = 0.77%

**FT30 Portfolio:** average annual stock turnover (33%) x transaction cost (1%) + [half of the balance of stocks rebalanced (67% x ½) x transaction cost (1%)] = 0.33% + 0.335% = 0.67%

**Taxes**

For the ‘Dogs’ portfolios drawn from the FTSE100 list, the mean return ($R_{\text{FTSE100}} = 12.53\%$, reported in Table 1) decomposes to a mean annual capital gain and dividend yield of 5.18% and 7.34%. Similarly, the mean return for the ‘Dogs’ portfolios drawn from the FT30 portfolios ($R_{\text{FT30}} = 7.18\%$, reported in Table 1) decomposes to a mean annual capital gain and dividend yield of 1.83% and 5.35% respectively. For the first eight years of the period under study, the UK capital gains tax (CGT) rate was 40% and 28% for the remaining five years, which equates to an effective rate of CGT for the period of 35.38%. Throughout 2000-2012, the effective rate of UK income tax on dividend receipts was 25%. ‘Dogs’ portfolio investors would therefore, suffer an effective return penalty (with respect to dividend receipts) of 1.84% (25% x 7.34% for the ‘FTSE100’ portfolio) or 1.34% (25% x 5.35% for the ‘FT30’ portfolio). Similarly, the (FTSE100 and FT30) ‘Dogs’ portfolio investor would suffer respective capital gain penalties of 0.99% (35.38% x 5.18% x 54%) and 0.21% (35.38% x 1.83% x 33%) in respect of stocks removed from the portfolios (sold) due to those stocks no longer meeting the qualifying criteria.

Taking all of the return penalties arising as a result of transaction costs and taxes produces total return penalties of 3.6% for the FTSE100 ‘Dogs’ portfolio investor (0.77% + 1.84% + 0.99%) and 2.2% for the FT30 ‘Dogs’ portfolio investor (0.67% + 1.34% + 0.21%). Given the mean annual gain on the market during this period (3.59%, reported in Table 1) and applying a similar average CGT rate would imply an ‘index’ investor should suffer a return penalty of 1.27% and the incremental return penalty for a FTSE100 and FT30 ‘Dogs’ investors would be 2.29% (3.56% - 1.27%) and 0.93% (2.2% - 1.27%) respectively. When we consider the basic AR1 measure for our portfolios and ‘Dogs’ investors would be 2.29% (3.56% - 1.27%) and 0.93% (2.2% - 1.27%)

In light of this analysis, we are left with the conclusion that our ‘post tax and transaction excess returns did persist, our analysis would suggest that post-tax and transaction cost residual returns are not statistically significant and we are left with the possibility that any residual excess returns may not be economically significant. These conclusions are consistent with those of McQueen, Shields and Thornley (1997), Domain, Louton and Mossman (1998), Hirshey (2000), Ap Gwilym, Seaton and Thomas (2005) and Rinne and Yehammasi (2011). Our results are not wholly consistent with those of Filbeck and Vischer (1987) which suggested that a ‘Dogs’ strategy underperformed in the UK market. Consistent with the findings of Hirshey (2000) we find some evidence which points to periods where the ‘Dogs’ investment strategy produced poor relative performance.

Nevertheless, it is likely that, in the case of smaller individual investors with an appropriate attitude to risk, and for whom the cost of discretionary management advice would be either prohibitive or unacceptably diminishing to their investment returns, and for whom opportunities exist to shelter income and capital gains from relevant taxes, this investment strategy may, and no doubt will, continue to hold some degree of interest. This is all the more so in light of very poor returns available for smaller investors from currently available conventional products.

References cited in this paper are listed at cisi.org/rofmsept2014

**THE TECHNOLOGY TRANSFER OF QUALITY FUNCTION DEPLOYMENT (QFD) FROM ENGINEERING INTO INVESTMENT MANAGEMENT**

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**ABSTRACT**

Quality Function Deployment (QFD), originally developed as an engineering tool to translate vague design requirements into a detailed specification, was identified as a possible tool to translate unclear financial requirements of private clients into measurable targets. A visual matrix is used to translate these requirements using several tools to help set and rank targets. This article sets out to investigate the transferability of QFD into investment management. It demonstrates an application of QFD to an investment management scenario, providing alternative methods to the current techniques. The results are encouraging. Potential benefits of applying this technique include an improved approach to identifying and meeting client suitability requirements.

**INTRODUCTION**

The financial industry has been plagued with problems of missold financial advice over the past few years. The Financial Conduct Authority (FCA) has introduced new rules on suitability to ensure clients are protected. The FCA is tasked with addressing the problems associated with providing financial advice, leaving companies exposed to new rules and regulations. Companies must have strict compliance measures in place to ensure the most suitable service is provided; however, clients’ requirements may be vague and deciding the best option is not always clear cut.

Quality Function Deployment (QFD) is a method of ensuring quality, satisfying the customer by translating their vague requirements into measurable design targets (Akao, 1990). QFD was initially designed for engineering and has been successfully implemented by many companies including Ford,
Mazda and Toyota (Al-Mashari et al., 2005. ReVelle et al., 1998). Although originally intended for engineering, the technology was soon transferred to the service industry, with great success (Cohen, 1995).

The creator, Akao (1990), recognised that satisfied customers are one of the most important aspects to retaining business, QFD therefore focuses on identifying and understanding customer needs. Tools were developed to help achieve this, such as the House of Quality (HOQ). This article assesses whether investment management can benefit from QFD and, furthermore, what the effects are.

The author has undertaken this project as an opportunity was identified while working at an unnamed investment bank. It was noted that vague customer requirements were often given little consideration and generally were not translated into a meaningful specification.

For reasons of confidentiality, the bank that has provided details of its methods of investment management would like to remain anonymous.

**Project aim and objectives**

The aim of this paper is to investigate the transferability of QFD, used within the field of engineering, into the financial sector, with particular focus on investment management. This project will deliver a conclusion on whether QFD can be successfully applied to investment management as an alternative to the current techniques.

**Methodology**

To assess the feasibility of QFD in investment management, the concept should be applied to a real client. A client factsheet provided by the investment bank will be used to construct a HOQ.

Stuart et al. (2002) suggest five critical research stages. These stages will be followed accordingly and broken down to:

- **Research question:** Can QFD be successfully transferred, from engineering to investment management, benefiting the industry?
- **Instrument development:** Building a HOQ template and completing an example HOQ
- **Data gathering:** Using a client factsheet and an informal interview with the client to determine its exact requirements, these will be the input into the initial HOQ
- **Data analysis:** Determining the success of the implementation by gathering feedback from the investment bank
- **Dissemination:** Discussing the effects of QFD in investment management, advantages and disadvantages will be reviewed.

**QUALITY FUNCTION DEPLOYMENT**

QFD can be defined as a method of translating vague client requirements into detailed measurable design targets.

It works by cascading house of qualities (HOQ). The HOQ is a matrix used to identify and translate the client’s requirements. Figure 1 shows the breakdown of the HOQ sections.

**Section A** - List of customer requirements. Also included is the importance’s numbers. This is a numerical rating assigned to weight different requirements.

**Section B** - Competitor analysis of customer requirements; however after extensive research, was deemed too vague for investment banking purposes. This section has therefore not been used.

**Section C** - Responses to the customer requirements.

**Section D** - Matrix of relationships between customer requirements and technical responses.

**Section E** - Shows correlations between the technical responses to highlight any conflicting or reinforcing responses.

**Section F** - Results sections, including targets and overall importance calculated from the weights and matrix results.

Some of the response to the client’s requirements can be very vague and cover a large area of expertise. For this reason it may be necessary to cascade the HOQ, as shown in Fig. 2, to identify further ways of addressing said requirement.

Figure 1- House of Quality (Cohen, 1995 p. 12)

![Figure 1- House of Quality](image)

Figure 2- QFD implementation (Cohen, 1995 p. 14)

![Figure 2- QFD implementation](image)
Cascading may be unnecessary as a single HOQ may contain all the information desired. There may be a chance of over-formulating the responses which should not be blindly followed; the HOQ should be used to actively encourage discussion. At this stage only a single HOQ has been drafted. Many of the construction steps can be automated to make the system as cost effective as possible, ideally with only specifics being entered manually. The HOQ can be modified to include or exclude any parts as wished.

**HOQ CONSTRUCTION**

The following steps outline the construction steps of a HOQ with respect to investment management:

1. Gather relevant client requirements from client factsheet (possible automation). Establish further, more specific, client requirements from an informal interview. These requirements are then put into the HOQ under the Customer Requirements. Some of these requirements do not have to come directly from the client, for example regulatory requirements.

<table>
<thead>
<tr>
<th>Importance</th>
<th>Urgency</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>9</td>
</tr>
<tr>
<td>Medium</td>
<td>6</td>
</tr>
<tr>
<td>Low</td>
<td>3</td>
</tr>
</tbody>
</table>

![Figure 3: Customer importance matrix](image)

2. Assign a numerical weighting to each requirement, ideally this is carried out with the client. This can be done on any scale; however for the purposes of this, an importance/urgency matrix was used as shown in Figure 3. This matrix can be easily explained to the client with relatively quick answers. How important, how urgent?

3. Note ways of translating the client’s requirements into a specification to fill in the technical responses. The best way to do this is to go through the customer requirements individually and try to answer each one. This could also be semi-automated to fill in certain responses when certain client requirements are listed.

4. Complete correlations between the technical responses in the roof of the HOQ. These are, as stated earlier, responses to highlight any conflicting or reinforcing responses. This can be helpful when establishing solutions and targets. This section will have a + for positive, a – for negative, and blank for no correlation.

5. Complete HOQ relationships. This is the relationships between the client’s requirements and the technical responses. A symbol relationship is used where “&” is given to a strong relationship, “×” is given to a moderate relationship and “÷” is given for a weak relationship, is given to a moderate relationship and a is given for a weak relationship. The matrix works by assigning numbers to the symbols, strong being the highest given a 9, moderate 3 and weak 1. There can also be no relationship where the cell is left blank.

6. Targets are filled out. These are ways in which the technical responses can be quantified by and how they will be achieved. These are also assigned an organisational difficulty. This is a rating of how hard it is for the company to achieve the target.

7. Finally a competitor assessment is filled out to evaluate how the company compares to other similar ones. This is helpful for identifying areas for improvement.

Figure 4 shows a HOQ that has been filled out with client data.

![Figure 4 – Example client’s HOQ](image)

**EVALUATION**

To assess the suitability of QFD to match the client’s requirements with investment services, a semi-structured interview was set up with a senior investment manager at the investment bank. The interview questions were designed to: assess if what was designed met the definition of QFD, if QFD had the potential to work in investment management, and finally; how, if at all, it could be further refined.

The first sets of questions were based on the ASI (1992) creative definitions of QFD and the second sets were to gauge the general impression of the investment manager on QFD.

In summary of the interview, eight out of the nine definitions were positively met. The only one not to meet the criteria was reducing uncertainty over the process, although it was admitted the tool may have potential for this. Investment management is a particularly uncertain activity, where the skill of the manager is part of the service provided. Directly reducing uncertainty through the process is not probable; however, QFD can aid decision making which can lead to reducing uncertainty.

As well as the summary of the definitions, there were also relevant points raised. The main points of interest that were raised and general feedback received included:
REVIEW OF FINANCIAL MARKETS

• Testing and altering the model may be resource hungry
• Clients should not be involved in the interpretation of results
• More must be done to reduce model uncertainty
• Everyone must be aware of the tool
• Refinement of questions and categories to standardise the inputs
• It is a very good plan for a computer program/algorithm
• The benefits of the roof of the HOQ were not seen.

All these points are valid and could be used in conjunction with further studies for improvements to the tool.

DISCUSSION

The approach to the design of QFD for use in investment management and the appropriateness of the tool are both of interest in examining QFD. The technology transfer of QFD must be assessed to decide on its suitability.

Approach to design

The design process started with first understanding the industry. It soon became apparent that the investment management industry had issues in translating customer requirements, some vague, into an actionable plan. When presented with a vague set of customer requirements in engineering that need to be translated into a design specification, QFD is one tool that can be used.

In identifying QFD as a method of transforming customer requirements into a detailed design specification, the possibility of transferring this tool into investment management was developed. The methodology to achieve the appropriate design first started with an initial HOQ and was refined through a combination of trial and error, general contact with a client who required financial advice and also a QFD academic. Once the initial design was completed, a semi-structured interview with a senior investment manager was set up to gather feedback.

To implement QFD, regardless of the type of industry, a HOQ template has to be constructed. This was initially identical to one that would be used in engineering. In filling in the matrix with gathered client data, the input data was too disorganised to have any structure to it which led to important requirements being easily missed. A solution to this was to categorise the input into classifications: risk, investment objectives, cash flow, liabilities, taxation, financial objectives, retirement plans, estate plans, restrictions and others. The HOQ was also modified to include categories for the technical responses, but these are likely to depend on the client and should be decided on at the discretion of the investment manager.

The next modification was the removal of the customer competitive matrix located on the right-hand side of the HOQ; although this works fine for engineering, the customer competitor assessment in investment management was not found to add any necessary value. It was important to keep the tool precise and ensure it was clear and concise, as it would be the first time QFD was being used and by inexperienced personnel.

The HOQ was also tidied up by hiding the working, non-value adding cells. As well as this, conditional formatting was added to the percentage results to highlight which responses were of highest importance. The product/technical response comparison was reformatted by only including a joining line on ‘our product’ to highlight the company’s comparative performance.

Once the HOQ was completed, a report was sent off to the investment bank which included a completed HOQ and template. The feedback questions were based on QFD definitions.

Technology transfer

With the aim to investigate the transferability of QFD, used within the field of engineering, into investment management, it is important to assess the differences between QFD used in engineering and in investment management.

The main differences between the two applications are the technical responses. Engineering responses are easily made quantifiable whereas in investment management this is not so simple: they may be qualitative or quantitative. These potential qualitative outcomes, for example suitable liquidity, are hard to quantify and generally rely on the investment manager’s experience. This was noted by the investment manager on the feedback, suggesting the use of a numerical scale to all outcomes. For example a scale of 1 to 10 could be used and when certain targets use ‘medium’ then a 5 could be used. This at least allows a standardised set of outcomes for comparisons and relies less on judgment of what ‘medium’ means.

The other difference between the two industries is cultural. In engineering, QFD and other quality related ideas are widely accepted because of their known success. This makes implementation much easier as acceptance is much higher. In finance, QFD is a relatively unknown technique which people may not easily accept. Acceptance may be difficult with the more experienced managers who believe they know best and may oppose any changes to their methods. It must be viewed, and presented, as a tool they work with rather than a framework to constrict them.

As Johnson and Lybecker (2009) discussed, acceptance is important in a successful technology transfer. Ongoing support and assistance must be provided to aid the implementation. These are both aspects that must be considered to assess if the technology transfer would achieve the set out goal; furthermore, the tool must be checked by the internal compliance department of an investment bank, before use, to ensure it meets regulatory standards.

Appropriateness of tool

From the feedback gathered, the results of which QFD definitions were met can be answered. Out of the ASI’s (1992) nine creative definitions of QFD, seven had positive results, one had potential and one was not met at all. The only definition not met was reducing uncertainty over the process, a very difficult task, as investment management is inherently uncertain. It can be concluded that this is not the fault of the tool but that of the industry which cannot be avoided.

Benefits

The benefits of QFD are numerous. The main benefit that it is a customer determined process, allowing the customer to identify exactly what they want, giving them an input into the design of, in this instance, the service. QFD aids communications, both between the client and investment manager and internally in the company. It can be used effectively as a tool to encourage active discussion between other managers, departments and client. This discussion encourages questioning of every process. QFD is a very good planning tool. This allows the company, once the customer requirements and solutions are identified, to plan a suitable method of implementation. Process efficiency can also be improved as QFD lists weightings alongside targets and organisational difficulty. This can aid ordering of targets by importance and ease. Other benefits include: competitive analysis, reduced development time and cost and, documentation of the process of matching customer requirements to solutions and targets. Documentation is proving more important than ever before with increased regulation since the 2008 banking crisis.

Finally it must be noted that QFD is a unique tool. It could provide certain marketing advantages, perhaps not to retail clients, but to institutional investors who may have more knowledge of the investment process and who may understand the tool better. This provides the bank using the tool a potential selling point.
Issues
The feedback gathered was invaluable; however, only one semi-structured interview was conducted. This is satisfactory for initial findings, but to obtain a more accurate and reliable set of opinions and data, a sampling method as discussed by Das (2009) should be undertaken.

Retrospectively, the relative weighting in the results section of the HOQ should have taken into account organisation difficulty in the calculation. By using Pareto analysis principles, the most significant and easiest task could be allocated a higher weighting and therefore help produce an order of task by importance and ease.

Other issues included construction time. Creating the HOQ was a very time intensive process, although some automation could significantly improve this. Increased time can increase cost, which should be outweighed by the cost benefits brought by QFD.

CONCLUSION
The aim of this paper was to investigate the transferability of QFD, used within the field of engineering, into investment management and answer whether QFD can be successfully applied as an alternative to the current techniques. By applying a client’s requirements to a HOQ and receiving successful feedback, a HOQ has successfully been implemented. It is still not clear whether QFD is suitable as a tool, as it was found that the success of the HOQ resulted in the lack of need for cascading into a full QFD. Feedback also suggested that the submitted HOQ met eight out of the nine ASI (1992) creative definitions of QFD, with uncertainty not being reduced. From this it can be concluded that the method was QFD with a majority of definitions met. The objectives: applying a HOQ to investment management, assessing the suitability of QFD to match the client’s requirements with investment services and evaluating the effectiveness of the technology transfer of QFD were all met successfully.

The technology transfer did present some initial problems, such as the extreme differences between engineering and finance. Some of these, such as culture, are hard to assess until further testing and gathering of feedback is completed. Ongoing support and assistance must be considered, as well as the legal and regulatory challenges that may be faced. It is critical that there is sufficient knowledge of the tool for successful implementation.

Further development should start with increasing the sample size. This would improve the accuracy and reliability of data. An increase in feedback would also help refine the tool further for application in investment management. Automation of certain parts of the HOQ could potentially lead to strong interest from investment banks as discussed in the interview. Finally, applications beyond what has been discussed here in this paper may be explored prompted by the technology transfer of QFD.

To conclude, it does appear that QFD has potential for successful application to investment management in the future. Further work is required to add validity to the findings presented in this paper; however, the initial findings suggest there could be a positive outcome.

References cited in this paper are listed at cisi.org/rofmsept2014

GOVERNANCE, CONDUCT COSTS AND EQUITY PERFORMANCE IN FINANCIAL SERVICES: RECENT EVIDENCE OF LARGE FINANCIAL INSTITUTIONS
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ABSTRACT
Studies correlating corporate governance and equity values of publicly-listed banks yield varied conclusions, depending on geography, business cycles, and other factors. Few have examined financial services in mature (yet volatile) markets, specifically around conduct costs as a corporate governance indicator - the purpose of this preliminary study. Conduct costs are monetary fines or redress demanded by regulators and legislators, publicly reported by institutions. Despite recent events, clear correlation of these costs with equity value is not obvious. Banks’ role in the financial crisis begs further scrutiny of this dynamic, which theory suggests should be negative (high conduct costs lower returns, and thus shareholder value). Lower costs, reflecting stronger governance, lead to superior returns - the initial result of this study of ten banks over the last six years. High conduct costs have negative impact, albeit small, on returns and value. This further reinforces the expected benefits of proper governance to shareholders, managers, regulators and all stakeholders in financial services.

BACKGROUND
Internal determinants of company equity value have been the subject of numerous studies, which have yielded insights into important factors such as profitability, solvency and asset quality. Internal determinants are factors influenced by a bank’s management decisions. Although good quality management is seen to lead to good performance, it is difficult, if not impossible, to assess management quality directly. It is explicitly assumed that such quality will be reflected in operating performance. As such, it is not uncommon to examine a bank’s performance in terms of financial variables found in financial statements.

Features of corporate governance, another internal determinant, have also been identified as additional influences on firm value (Adams and Mehran, 2008; Agoraki et al., 2009). Corporate governance encompasses a wide range of mechanisms intended to mitigate agency problems, by limiting opportunistic behaviour of management (Ashbaugh et al., 2004). Prior studies have examined indicators such as board composition, board and executive compensation, and internal audit quality, largely indicating that good corporate governance does have a positive impact on firm value. Another primary governance indicator, not yet examined in detail, is that represented by conduct costs, the money that banks and other firms pay out in the form of fines or redress levied by regulators and legislators. These costs may also include other forms of payments, such as sums paid in settlement of either regulatory proceedings or litigation based on allegation of a firm’s misconduct. Amounts paid for the repurchase of securities from the market at the behest of regulators, eg, because they were missold, are also included. Therefore, practices such as misselling of payment protection insurance (PPI), benchmark manipulation and breaching of money laundering rules all fall under the definition of conduct costs (McCormick, 2014). Many large banks have set aside meaningful provisions for these costs in recent years.

This paper investigates the extent to which conduct costs, effectively a failure of corporate governance, affect market return and value among a group of ten large banks over the past six years (2008-2013), for which data are readily available. Conduct costs are measured by reported annual penalties paid by banks up to the end of 2013, as well as provisions made at the end of 2012 and 2013. Data preceding 2008 remain sketchy, hence the focus on the last six years, which also coincides with the financial crisis, when external determinants such as GDP, not included in this study, played
a significant role. The prediction is that the level of annual conduct costs, as a percentage of pre-tax income, is negatively related to banks’ equity returns (ie, higher conduct costs result in lower returns). Conduct costs by their scale and uncertainty represent a risk to shareholders, resulting in an erosion of value (Garmaise and Liu, 2005). If, on the other hand, higher conduct costs are associated with higher returns, perhaps through benefits of greater transparency, or have no discernible impact, another explanation for this relationship is to be sought.

It should be noted that conduct costs recorded up to now for ten big banks, even on a cumulative basis since 2008, still account for a small proportion of the banks’ total assets (from 0.3% to over 5%), but an increasing percentage of their market capitalisation (from 4% up to 36% for the ten banks, including year-end 2013 provisions). The effect of conduct costs could become more meaningful over time, given current trends.

Since conduct costs are only one factor affecting value, and potentially small at that, it is appropriate to consider another important factor driving value. Evidence indicates that investors are focused on risk and profitability expectations (European Central Bank, 2010), therefore a key parameter is a risk metric such as levels of impaired assets. The prediction is that returns and value should be positively correlated with good asset quality, as measured by impaired loans to gross loans.

Why is this preliminary study important? Surveys in the UK (Which?, 2012) and US (Edelman, 2014) continue to show that banking is one of the professions least trusted by the general public, a view which regulators and other participants are striving to address (Lambert, 2014). There is evidence that, while the first priority of stakeholders in a company is the quality of the company’s products or services, the second is the trust and confidence that stakeholders have in the company (Phillips, 2004).

The purpose of finance is to assist people in saving, managing and raising money. Economic globalisation has increased the magnitude of finance to systemic importance, counterbalanced by conduct costs for ten banks alone exceeding £150 billion over a five-year period, well above the UK National Health Service’s annual budget, for example (McCormick, 2014). It is therefore critical to re-build trust in the industry, which involves reinforcing with all stakeholders the importance of good governance, and emphasising corporate and social responsibility (CSR). Institutions pay a price for misconduct, not only in quantifiable monetary terms, but also in less tangible costs to reputation and franchise.

Good governance and conduct (measured by relative level of conduct costs) should correlate positively with long-term investment performance (measured by annual equity returns over six years), given that a firm’s culture and ultimately value is strongly influenced by the nature and quality of leadership shown by the board and executive management.

LITERATURE REVIEW

Much previous research has been done on the relationship between corporate governance indicators of publicly-listed companies and their returns and value. A landmark study was made by Gompers et al. (2003), who looked at a wide sample of European companies over a multi-year period, using a large number of governance criteria. This concluded that good governance, in fact, resulted in higher value, a finding further reinforced by Bauer and Gunster (2003), although the latter found that this did not always hold in the short term.

Looking specifically at the UK, Shaukat and Padgett (2005) determined that an index of non-compliance with the UK Code of Corporate Governance for a panel of FTSE350 companies over a four-year period was negatively related to total shareholder return, implying that more compliant firms have higher returns. On a wider basis, McMurrain and Matulich (2006) concluded that demonstration of business ethics added value for customers and heightened firm performance and profitability. More recently, Abdullah and Page (2009) examined UK non-financial companies, revealing no strong systematic relationship. A similar conclusion was reached by Diavatopoulos and Fodor (2010). Marsat and Williams (2011) actually observed strong evidence of a negative impact of responsible behaviour on corporate market value. Giroud and Mueller (2011), however, found positive correlations between good governance and good market performance, particularly in non-competitive industries, while Lewellen (2012) saw no compelling industry-specific governance factors to explain differences in returns. Huppe (2011) concluded that so-called CSR ‘alpha’ resulted largely from the improved disclosure entailed in implementing CSR. Mousselli et al. (2014) pointed to audit quality as an important governance determinant, recently echoed by CFA Institute (2014). Most recently, scholars associated with the London School of Economics (LSE: McCormick, 2014) have compiled total conduct costs for ten large US, UK and European banks, in terms of total costs incurred 2008-2013 (also along with provisions made for the same as of 31 December, 2012 and 31 December, 2013, as reported on their balance sheets). While this study did not draw any relationships with equity performance, this is seen as a useful next step.

Casson (2013) finds that explicit reference to principles of proper conduct is largely absent from governance guidance and regulation in the EU. It seems that a solid link is yet to be made that what constitutes proper conduct, reflected in good governance, is good for business, and hence shareholder returns, or that what is improper is negative for returns and value.

High conduct costs ultimately affect the profitability and capital positions of banks (the UK regulator has warned of this recently: Finch, 2014), but the actual extent to which this is observed has polarised opinion. There are admittedly limitations to the use of conduct cost data. For one thing, they are based on figures solely in the public domain which in some cases includes ‘incomplete information.’ Hence all data must be regarded as approximate. Initiatives towards establishing a more consistent approach to disclosure of material information in this respect are to be welcomed.

Further, some have argued that a political agenda lies behind the scale of the reported conduct costs, which are not solely driven by bank managements themselves. J.P. Morgan, for instance, stated that 80% of the misconduct covered by its $13 billion settlement for toxic mortgage-backed securities stemmed from Bear Stearns and Washington Mutual, both taken over by Morgan in 2008. Given the bank’s strong market position, some commentators claim it was pressured by the US Government to acquire troubled banks in order to help stabilise the US economy (Benedict, 2014). In this regard, greater transparency is also to be expected of governments and regulators in their actions.

As also pointed out by Benedict (2014), this cost analysis highlights different reporting and regulatory standards across different jurisdictions, which potentially emphasise deficiencies in national corporate accountability and transparency. One of the purposes here is to analyse firm-specific, rather than jurisdictional, failings with the ultimate goal of encouraging healthy competition among banks from a stakeholder perspective. For instance, the study excludes banks domiciled in the Asia-Pacific region, and Canada, where conduct costs tend either not to be reported or not incurred. The extension of the LSE project to more banks around the world, currently under way, is a welcome initiative.

Some have observed a drag on asset value associated with conduct risk (Worship et al., 2013), based on shorter-term market movements. There is often a price decline associated with a large liability, but sometimes also a price increase due to greater investor certainty going forward. Other analysts have noted a ‘multiplier effect’ of conduct costs on bank valuations greater than that associated with ‘normal’ trading losses (Moynihan et al., 2013). Decreases in market capitalisation relating to conduct losses have been observed to be typically 2-8x greater than the size of the underlying loss event. Of greater interest perhaps are the longer-term effects of elevated conduct costs on profit and market value.

HYPOTHESIS AND RESEARCH METHODOLOGY

To help rebuild trust in the financial system, it is important to better align the interests of managers and stakeholders, a primary group being shareholders in financial institutions. If it is observed that well-governed companies
provide superior value, by not incurring excessive conduct costs, this can send a strong message to boards and managements that good governance contributes to enhanced wealth creation, thus providing further incentive to strengthen and maintain good governance and conduct. This should drive greater transparency, management accountability and responsibility, and ultimately greater trust in institutions from investors and the general public, who are the customers of these institutions. The objective of this research is to show a link between measures of corporate governance and misconduct in large financial companies and their returns over a multi-year period. The research plan involved examination of market returns of a sample of large financial institutions over the past six years (2008-2013), contrasting that with conduct costs paid as publicly reported by these companies, and as analysed by others.

As stated, conduct costs relate to money that banks have paid out in the form of regulatory fines or redress demanded by regulators. They may also include other forms of payments, such as:

a) Sums paid in settlement of regulatory proceedings (whether or not there is any admission of wrongdoing)
b) Sums paid in settlement, or at the conclusion, of litigation that is based on an allegation of a bank’s misconduct or that of its officers (although it is not intended to cover all litigation costs, whatever the nature of the claim)
c) Sums paid for the repurchase of securities from the market (because they were missold) at the behest of regulators
d) Egregious losses caused by a bank employee’s serious misconduct and/or attributable to poor risk management.

Therefore, practices such as misselling of PPI, benchmark manipulation and breaching money laundering rules fall under the definition of conduct costs (McCormick, 2014).

These recorded conduct costs, as one independent variable, are then compared against the historic market returns of the banks, in order to gauge their effect on returns. Given the relatively small sample of ten banks, a cross-sectional panel regression approach is used, incorporating other variables. Return information is correlated against actual conduct costs paid, as a percentage of pre-tax income, along with a proxy for asset quality, which is the reported level of impaired loans as a percentage of gross loans.

Panel data are commonly used because of the following reasons. First, this has the advantage of giving more informative data as it consists of both the cross-sectional information, which captures individual variability, and the time series information, which captures dynamic adjustment. In short, panel modelling helps identify a common group of characteristics while, at the same time, taking account of the heterogeneity that is present among individual units.

The consensus from the literature is that the appropriate functional form of analysis is the linear one. Thus in this study a linear model is used to analyse the cross-section time series data to isolate the equity performance determinants of the banks.

Panel data models are usually estimated using either fixed-effect or random-effect techniques. If the number of time series data (T) is large and the number of cross-sectional units (N) is small, there is likely to be little difference in the values of the parameters estimated by the two models. Since there are only ten cross-sectional units that involve six years’ data in this study, the regressions in our study are estimated by the fixed-effect model.

Conduct cost metrics focus on actual costs incurred and paid per year, as a percentage of pre-tax income earned in that year. These data are compared with asset quality of the firms (using Bankscope as an information source), in order to correlate conduct costs with historical returns, largely following the methodology of previous related studies (Cordeiro and Vilayath, 2003). Such an investigation ultimately lends itself to wider samples and longer time periods, but initial indications may suggest that equity investors are rewarded by good governance, as manifested in lower relative conduct costs, which help them to make positive investment decisions based on transparency, robust risk management and service to stakeholders.

HYPOTHESIS

This study considers whether the following deductive hypothesis, constructed based on the literature review – after Garmaise and Liu (2005) and Peri and Valdhama (2012) – can be applied to banks, and thus can result in recommendations for future research.

H1: that banks incurring high conduct costs as a percentage of their pre-tax income exhibit lower market returns on average, and lower valuations, due to the consequences of inadequate governance.

RESEARCH METHODOLOGY

The author conducted a quantitative approach of deductive reasoning to the hypothesis, employing a secondary quantitative statistical analysis of data following prior research methods.

BANK FEATURES

The sample of ten banks include four based in the UK, four in the US, one in Switzerland, and one in Spain. All have had meaningful operations in the UK over the period of the observation. All rank among the world’s 30 largest banks by market capitalisation, and among the top 15 in the US and Europe by the same measure. All have a presence on the London Stock Exchange.

DATA ANALYSIS AND DISCUSSION

The hypothesis was tested using pooled time-series cross-sectional regression analysis. This procedure deals with data sets that consist of time series observations (in this case the six years from 2008-2013 inclusive) on each of several cross-sectional units (in this case, the ten banks). The pooled time-series cross-sectional regression (implemented using the regression function in Excel) uses a general model of the form:

1. \( \text{Returns} = f(\text{conduct costs/pt income, impaired/gross loans}) \)

The basic regression equation is as follows:

2. \( \text{Returns} = \alpha + \beta_1 \text{conduct cost/pretax income} + \beta_2 \text{impaired/loans/gross loans} + \epsilon \)

Equity market return is the dependent variable, the independent ones being relative level of conduct costs (to pre-tax income), and impaired loans to gross loans.

The empirical evidence on the determinants of bank’s equity returns is based on balanced panel data, where all the variables are observed for each cross-section and each time period. In this study, a single econometric specification is estimated, including only the bank-specific variables. The estimations are performed by the generalised least squares (GLS) technique, especially suitable for data sets where serial correlation and/or heteroscedasticity might be present.

The results of the regression analysis are given in table 1.

<table>
<thead>
<tr>
<th>Bank characteristics</th>
<th>Predicted sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.060177 (0.09699)</td>
</tr>
<tr>
<td>Conduct costs/pretax income</td>
<td>-0.02515** (0.013625)</td>
</tr>
<tr>
<td>Impaired loans/gross loans</td>
<td>-10.7881** (5.04957)</td>
</tr>
<tr>
<td>R squared</td>
<td>0.12</td>
</tr>
<tr>
<td>No. of observations</td>
<td>60</td>
</tr>
</tbody>
</table>

(i) The regression is based on fixed-effect estimation and is estimated using GLS estimation pooling bank level data across ten banks for the 2008-2013 period.

(ii) Standard errors are given in parentheses. **indicates significance at the 0.05 level or better.
DATA ANALYSIS AND DISCUSSION

H1: that banks incurring high conduct costs as a percentage of their pre-provision income exhibit lower equity returns on average, and lower valuations, due to the consequences of inadequate governance.

R2 shows how well this combination of variables can predict market returns, and in this sample R2 at 0.12 shows that 12% of the variation in returns is attributable to the variables of conduct costs to pre-tax income and impaired to gross loans, thus suggesting that other elements may play a larger part in predicting overall returns.

However, as indicated in Table 1, the negative coefficient of conduct costs indicates better returns for well-governed banks, which result in lower costs of conduct.

The inverse relationship also between returns and impaired to gross loans supports earlier findings (Staikouras and Wood, 2003) that asset impairments reduce the market return and value of banks. Though banks tend to be more profitable when they are able to undertake more lending activities, yet due to the credit quality of lending portfolios, a higher level of impairments occurs. Such a high level in fact depresses banks’ equity returns significantly.

The analysis has yielded a couple of key findings. First, a negative association is observed between conduct costs as a proportion of pre-tax income and the sample banks’ equity market performance. Second, it is documented that conduct costs relative to pre-tax profit have some limited explanatory power for banks’ equity returns after controlling for the risk proxy of asset quality. The observation that banks with relatively low conduct costs have superior equity returns adds to the literature on the financial information characteristics valued by the market. This result also provides insight into how governance is priced in that it is observed that conduct costs and asset risk are partial determinants of firm value. These findings lend support to Gorman and Liu (2005), who model firms’ exposure to risks as a function of the quality of firms’ governance.

LIMITATIONS OF THE STUDY

The scope of this short paper limits consideration of the many variables that can contribute to differing outcomes, but the author has statistically considered the variable of asset quality in addition to conduct costs to deepen results. The literature review has been limited to post-2003 studies and has also not considered external determinants of bank returns, which during the sample period could have a significant effect.

The author has presupposed that the banks considered have similar characteristics. Results from previous literature indicate that a variation of results may be dependent on study size.

Due to length restrictions and data availability considerations, basic regression analysis has been undertaken, although more complex statistical analysis may have produced different results.

SUMMARY AND CONCLUSIONS

This paper explored the link between bank conduct costs, a key governance indicator, and their equity returns. High conduct costs can affect equity returns through their impact on profitability and capitalisation of the bank. Promoting high standards of conduct and reducing conduct costs enhances profitability and capital, and provides management with a transparent long-term planning horizon. All of these are perceived positively by shareholders, resulting in enhanced equity performance.

These arguments were tested on ten large international banks over the period 2008-2013, measuring reported conduct costs as a percentage of pre-tax income against market returns over that timeframe. The results suggest that returns are negatively associated with conduct costs, in other words, that banks incurring high conduct costs yield lower equity returns relative to their peer group.

A contribution is made to the existing literature on the determinants of value and return by identifying another factor that explains value and return beyond factors traditionally used to explain them. Consistent with prior research on costs (Staikouras and Wood, 2003), it is documented that the level of conduct costs is negatively related to banks’ equity performance.

There are several potential directions of future research that this study would suggest. One direction is to study the effect of conduct costs on other cost of capital measures, such as the cost of debt capital. Another potential extension is to use more refined measures of conduct costs and to study their effect on overall cost of capital. This line of research would help to develop a clearer picture of the relative benefits of lower conduct costs, since ultimately one of the primary reasons for the existence of effective governance mechanisms is reduction in the cost of capital.

References cited in this paper are listed at cisi.org/rofmsept2014

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