An early assessment of the informational environment for equity investors since the announcement of new rules on paying for research

Alistair Haig*

Abstract

This paper examines the informational environment at a time of substantial change in the marketplace for investment research. Archival and case study analysis indicates that stock coverage remains wide and deep. Some surplus research has disappeared. The tendency for analysts to provide optimistic recommendations persists. Independent analysts rarely contribute to archives but supply research via a range of coverage models. Archival data understates the wider selection of research which is now available, but only to those who can find and afford it. Taken together, I find little evidence to date of a diminished informational environment for equity investors.

*University of Edinburgh Business School, 29 Buccleuch Place, Edinburgh EH8 9JS. Address for correspondence: [redacted]

Introduction

This paper examines change in the informational environment at a time of substantial change in the marketplace for investment research. The UK investment management industry has rapidly adopted new methods to pay for analyst research in order to comply with a major new European regulation, the Second Markets in Financial Instruments Directive (MiFIDII). The new rules are at least in part the product of the UK regulator's mission to protect customers, foster integrity and promote competition (FCA, 2017). Should a better-functioning marketplace for research emerge, we might expect supply and demand to be better matched, resulting in efficiency gains for investment managers and welfare gains for end investors.

Conversely, others have expressed concern that the informational environment will be depleted due to reduced quality and availability of research (Walker and Flood, 2018). This paper seeks to resolve these positions by asking whether or not the environment has changed, either for better or worse.

Since the 1970s it has been common for investment managers to "bundle" together execution and research costs and to pass both on to end-investors. Regulatory intervention, centred around the 2003 Global Analyst Research Settlement, targeted sell-side firms and introduced rules to restrict analyst activities, disclose incentive bias and subsidise independent research providers (IRPs). It did not, however, address the payment for investment research. Investment managers could continue to pay for research through the commissions paid for dealing shares to be bought or sold; these payments continued to be funded by end investors rather than the investment management firm itself.

Coincident with these US measures, the UK government commissioned the former chairman of a leading buy-side firm to investigate the condition of the UK equity market. The government was explicitly advised to simplify the means of paying for research, i.e., to replace the opaque, relational system of dealing commissions with a neoclassical market system. The proposed outcome was that investment managers would only pay for the investment research that they were prepared to pay for, and could compare the costs and benefits of procuring broker research with that of doing their own research.

The UK regulatory approach had little impact until 2014, when strict new European rules on the use of dealing commissions to pay for research were proposed. Around this time, investment managers first reacted by adopting an optional, invoice-based system more extensively. By 2015, UK investment managers and research producers had come to expect new procedures for obtaining external research. These new rules, debated in regulatory consultation from 2014 to 2017, took effect at the start of 2018. Consequently, research producers and consumers are now required to agree prices for investment research in advance of use. Investment management firms can no longer access broker research without payment as this would constitute an inducement to trade according to MiFIDII. To continue the established industry norm of charging end-investors for research, the buy-side must also set research budgets in advance and meet the requirements of a Research Payment Account (RPA) which are far more stringent than the prior system of Commission Sharing Agreements (CSAs). Alternatively, they can treat research as a cost to their own business. A significant change came in the second half of 2017 when the UK asset management industry shifted almost in unison by choosing the latter approach, i.e., to pay for research, with a view to reducing regulatory risks, operational burdens and client confusion. Investment managers have been taking a closer look at the cost of research: media reports link these to the "exodus" in sell-side research (Walker and Flood, 2018) and a 10% fall in sell-side

analyst headcount between 2012 and 2016 (Gordon, 2017), a period of buoyant stock market growth.

A newcomer to this market might expect to find significant change in research provision and subsequent impact on the informational environment. For example, it would be reasonable to expect to find fewer sell-side analysts, also less bias in the forecasts of those who remain and possibly a narrower range of research providers. The quantity, quality and price of research might fall. Unfortunately, data to test these expectations is rather scattered. Additionally, many suppliers and consumers of research have become quite guarded in the information they wish to disclose. This trend is, in itself, informative: fund managers do not want to flag the providers they are using because of the franchise value of unique information networks.

In this paper I examine the proportion of stocks which are covered by analysts (breadth of coverage) and the number of analysts covering each stock (depth of coverage). Narrower or shallower coverage would constitute evidence of a weaker informational environment. Next, I turn to the overall distribution of recommendations. A more even balance between buy and sell recommendations would indicate a stronger informational environment. Finally, I consider the role of independent analysts constitute in supplementing stock coverage.

This examination is of practical importance because analysts have for decades played an important role in the discovery, interpretation and dissemination of information to investors (Bradshaw et al., 2017). The marketplace for research is large, important to many buy-side firms and costly for end-investors, who, in aggregate, fund an estimated £1.5bn of external research per annum in the UK alone (FCA, 2014). It therefore cuts across themes of fairness and value for money in financial services (Kay, 2016). An early evaluation of the effect on the informational environment is therefore necessary.

Archival data has been the principal means of studying analyst information. Data vendors such as IBES, First Call, Factset and Bloomberg provide researchers with summary information from numerous research providers. The proportion of buy, hold and sell recommendations has remained almost constant since 2010.

Since data vendors include almost no IRP predictions, archival methods cannot fully answer my questions about stock coverage. Rather than limiting the study to archival data, I use a second batch of data sources, each of which provides a window on a cross section of data providers. Case study and questionnaire data shows, however, that many IRPs cover FTSE Allshare stocks. Perhaps more revealing is the fact that IRPs are not compelled to publish stock coverage. The survey and case study data is particularly useful for my third question which considers the range of ways that analysts inform investors. Most IRPs supply coverage only to existing clients rather than the market as a whole. Since many are specialised, and have focussed client lists, limited diffusion of information is likely. Investment managers will often be able to obtain independent research on a given company, but only if they are an existing client. IRP research is less likely to leaks into the marketplace. MIFIDII prohibits the supply of "free" research. It seems that there are now more suppliers of company research than ever before, but the services of many analysts reach fewer investors than in a bundled system where research was made available to the market as a whole.

There seems little doubt that brokerage analysts are under pressure and that sell-side head count is falling. This is likely to result in reduced coverage but could also mean lower quality research. If more independent analysts are covering companies this could mitigate or even counteract shrinking coverage. Evidence of increasing numbers of independent analysts, whether or not they

contribute to archives such as IBES, would count as evidence of an improvement to the informational environment. I do not propose to be able to make a causal link or even to assess whether the net effect on the informational environment is positive or negative. Nevertheless, taking stock of each of these information sources seems worthwhile.

Prior literature

The role of analysts in the information environment

Analysts play an important role in supporting the informational environment, via discovery, interpretation and dissemination of information (Bradshaw et al., 2017). Perhaps unsurprisingly, given the relative efficiency of the US stock market, recent content analysis shows that only one report in eight contains discovery and over one third of analysts never discover new information (Bradshaw et al., 2017). Interpretation seems to be more pervasive. Analysts also act as a conduit by broadcasting information even where a report lacks new discovery nor insightful interpretation. Analyst activities often blend two or more of these three informational roles.

The effects of regulation on investment research

Regulation of analysts remained stable from the deregulation of commissions in the US in 1975 until the early 2000s (Bradshaw et al., 2017). Analysts earned a higher profile during the 1990s and a few US analysts even became well-known to the public (Beunza and Garud, 2007). In the early 2000s, analysts had to grapple with new US regulations covering corporate disclosure (Regulation Fair Disclosure), corporate governance (Sarbanes Oxley) and sell-side analyst activities (Global Analysts Research Settlement). In an early paper on the impact of the Global Settlement, Barber et al. (2006) examine coverage and recommendation bias in First Call, a popular archive of US analyst recommendations. They find that sell-side analysts' optimism bias attenuates in response to the regulation's goal of reducing unjustifiable buy recommendations. This work was followed by a host of papers, reviewed in detail by Bradshaw et al. (2017), which examine the effects of regulatory changes, largely via analysts' predictive accuracy.

By updating the distribution of US analyst recommendations presented by Barber et al. (2006), Bradshaw et al. (2017) confirm a relative decline in sell (including strong sell) recommendations from 2002 onwards. They attribute this to the effect of the Global Settlement and related legislation which explicitly aimed to temper excessive optimism. The proportion of sell recommendations is extremely low throughout the1993-2015 sample period (Bradshaw et al., 2017, p164) but reached its highest level in 2002 and 2003, matching a stock market trough in the wake of the 1990s technology stock bubble and accounting scandals, with a smaller peak in 2008 and 2009 reflecting analysts' views during and after the global financial crisis. Sell recommendations stabilised at around 6-8% of all US stocks covered from 2010-2015. US analysts remain reticent to issue negative recommendations.

Barber et al. (2006) continue their study by grouping unaffiliated and independent analysts, creating investment strategies which follow the recommendations of each group, and comparing the profitability of these strategies to the distribution of ratings for each firm. This approach does not suit the present enquiry for several reasons. Firstly, where the Global Settlement and associated legislation sought to address the bias towards buy recommendations, MiFIDII is silent on practices relating to recommendations, or indeed other analyst outputs. Secondly, the lack of IRP data makes it impossible to make comparisons and, since unbundling affects both affiliated and unaffiliated brokers, it would not be appropriate to merge the latter with IRP analysts. Thirdly, studies such as Brown et al. (2015), Imam and Spence (2016), Bradshaw et al., (2017) and A. et al. (2018) provide much stronger evidence that recommendations, or indeed other analyst summary predictions, are of secondary importance to analysts' clients.

Studies of independent analysts

Few prior studies focus on independent research. Jacob and Rock (2008) find that investment bank analysts make more accurate earnings forecasts than their independent peers, this is likely to be a result of the superior resources afforded by the deep pockets of a Wall Street firm, including higher remuneration. Cross subsidies and certain types of knowledge sharing are typical and can be arranged without contravening regulations. Clarke et al. (2011) and Kadan et al. (2008) compare recommendations made by IRPs and SSAs before and after the imposition of new US analyst rules and note a shift towards less granular three-point recommendation scales (buy/hold/sell) rather than five-point scales, featuring strong buy and strong sell or equivalent. Price reaction to IRP recommendation changes became less informative. Taken together, these studies provide evidence that analysts were less likely to issue strong buys, which might have been inappropriate, but otherwise the impact on the informational environment was to provide less informative recommendations. Buslepp et al. (2014) confirm these findings over a longer time period and add that analysts at IRPs funded by the Global Settlement tend make less accurate forecasts despite having greater financial resources. Barber et al. (2007) merge unaffiliated and independent analysts and therefore do not produce results on IRPs alone. To compliment these archival studies, Allee et al. (2017) document target price accuracy of the equity research arm of Morningstar, the firm studied in chapters two and three. Like other research on IRPs, their results are confined to the US market.

Quantitative processes as an alternative to analysts

Analysts have been shown to provide higher quality outputs when they are well resourced and cover fewer stocks (Clement, 1999) and are each analyst can only cover a limited number of stocks. Since technology is more scalable, quantitative coverage is less constrained. Sell-side and independent firms have long provided quantitative recommendations to institutional clients. Even static quantitative models are demonstrably more effective than relying on experts (see for example, Wahlen and Wieland, 2011) An example of a dynamic approach, where machine learning is applied to continuously update algorithms, can be found in chapters two and three. Systematic approaches are also likely to be less costly:

> *"Advances in technology may also decrease the value of analysts' discovery and interpretation roles. Presumably one reason for the historical reliance of the buy-side on sell-side analysts is the cost of conducting high-quality research for a large number of stocks. As costs of research decline, the buy-side may be less willing to pay for sell-side analysts' services"* (Bradshaw et al., 2017, p151).

In addition to cost reduction, technological advances may improve analytical capabilities. Grennan and Michaely (2018) reveal the diversity of information which is available to professional, and often individual, investors.

Fabozzi (2008) records the growth in popularity of quantitative investing in the first half of the 2000s. This trend reversed sharply in August 2007 when illiquidity emerged as a common factor which had not been priced in. Confidence in systematic processes suffered from "widespread loss of faith in quant investment methods and those who use them" (diBartolomeo, 2013, p7). Although some active quant processes may have faced a decline in demand, low-cost "smart beta" processes, which apply factor methodologies and generally do not require analyst research, have become a prominent part of many institutional portfolios. Brokers' research revenues have fallen as a result.

Hypotheses

I propose five hypotheses to examine change in the informational environment, starting with an examination of the number of stocks covered by at least one analyst (breadth). With fewer analysts in post, we can expect the number of companies covered to fall.

H1: Research providers cover fewer companies (breadth of coverage will decline)

Secondly, I consider the number of analysts covering each stock (depth). Investors are likely to be best serviced where multiple analysts cover any given stock. Where a single analyst covers a given company this is most likely to be the house broker who is unlikely to convey a truly critical perspective.

H2: Fewer analysts cover each stock

Since investment managers are likely to pay for surplus, duplicative research we can expect fewer companies to attract a very large number of analysts.

H3: Fewer companies are excessively covered

Next, I examine the distribution of analyst recommendations. If the link between execution and research is removed, sell-side analysts have less incentive to make buy recommendations. We can expect to find a higher proportion of sell and strong sell recommendations.

H4: Optimism bias is lower

Some investment managers use independent analysts and it would be reasonable to expect that they may have replaced outgoing sell-side analysts. My final hypothesis addresses this.

H5: Independent analysts constitute a greater proportion of stock coverage

We are most likely to observe change in coverage of UK companies because the Financial Conduct Authority and UK market participants have shaped the new European rules. Although the changing regulations, now enshrined in MiFIDII, affect global markets via international firms, the earliest adoption is likely to be found in the UK. We can also expect to find change in Europe ex UK. Finally, there might be less amplified changes in the US market.

I do not claim to demonstrate causality. In time it may be possible to do so. Even so, we should be able to provide an informed assessment of the current state of the informational environment.

Research Design

Archival analysis

I examine the number of stocks covered in each market and the intensity of coverage, i.e., the number of analysts covering each stock.

Barber et al. (2006) present graphical evidence of aggregate changes in analyst recommendations. In their case they examine the recommendation bias before and immediately after the Global Settlement, a regulation which was explicitly aimed at preventing inappropriate buy recommendations. In this case, the regulatory change is not explicitly aimed at reducing bias. Even so, if the regulation removes surplus supply we can expect the surviving analysts to strive for accuracy. The distribution of recommendations would therefore correspond more closely to the distribution of stock returns; i.e., with approximately the same proportion of buy and sell recommendations.

Rather than limiting my research to a single market, I examine the US, UK and continental Europe separately. I expect MiFIDII to affect the latter two markets more than the US. Even so, research on US firms may be purchased by MiFID regulated firms and EU companies will be researched by non-EU research analysts and the research sold to non-EU investors. Although I cannot make a complete separation between the three markets, I would expect changes to be most evident in the UK, where the regulator has been most vigilant regarding research procurement, and least evident in the US.

The sample comprises all companies which have been present in the FTSE All Share index since 1996. This index comprises the large-cap FTSE 100, midcap FTSE 250 with over 200 small cap firms and therefore represents the broad market. Few companies outside these indices are covered by analysts. Repeating the analysis on all available constituents appears to make little difference to the results. I would welcome data on small company stock coverage in order to extend the analysis.

Barber et al. (2007) blend unaffiliated analysts with IRPs due to the paucity of truly independent firms. This was appropriate because the Global Settlement pertained to investment banks, their study required non-investment bank analysts to be identified. MiFIDII applies to all brokers regardless of investment bank affiliation. My line of enquiry requires IRPs to be studied separately from unaffiliated brokerage analysts. Although there are many hundreds of IRPs, no more than ten IRPs appear in each of IBES and Bloomberg (July 2018). It is simply not possible to justify the use of archives for the study of IRP stock coverage.

Case studies

Although IBES is known to have a long history and wide coverage, the data availability constraint noted by Barber et al. (2007) persists. Few IRPs submit to data vendors and no comparable, dedicated, database for IRPs exists. Bloomberg lists over 300 brokerage firms, but only ten IRPs. Since archives provide little information about IRP analysts, I turn to other sources.

A major survey (Questionnaire B), and the case study of a leading IRP specialist (case study A), both described below, document the expansion of specialists indicate that over 400 IRPs exist. The surveys, one polled from IRPs and the other from their buy-side clients, provide the most representative picture I have found on independent investment research. The case study allows us to see the research procured by early adopters of IRP research in the UK and therefore provides a window on the emergence of IRPs. I identified these datasets during fieldwork for chapter one to complement archival analysis. These case studies provide the best window I can find on the cross section of IRP firms.

Case Study A

Case study 1 is the commission management department of a brokerage firm which arranged CSA payments for 22 investment managers to 216 IRPs during the nine years following the introduction of CSAs in 2006. The dataset comprises annual invoice totals with descriptions and therefore

reveals the actual prices paid for research services. The broker classifies IRPs into seven categories such as fundamental, quantitative, macroeconomic and idiosyncratic. The underlying invoices are similar to the invoices issued for work undertaken by professional services firms.

Questionnaire B

US-based IRP specialist Integrity Research 17-item questionnaire on the topic of research payment. IRPs were contacted by email between September and December 2014. From 417 IRPs, 118 firms provided anonymous responses, 62% of which were US-based and 25% European IRPs. Assuming an actual population of 500-1000 IRPs, this implies a response rate between 12% and 28%, which is high for a survey in the investment industry. The authors assisted in the design of the questionnaire but had no commercial involvement with Integrity or with any IRPs.

Questionnaire C

Investment manager practices were surveyed by RSRCHXchange, a UK-based Fintech firm focused on written research. Using a 25-item online questionnaire in April-May 2017. A sample of 562 individual responses was obtained from around 10,000 investment managers who were approached by email. A 5-6% sample is not uncommon in surveys of investment managers (Brown et al.,2015). As with questionnaire A, the authors assisted in the design of the questionnaire but had no commercial involvement with the firm or with any IRPs.

Analysis of results

In this section I discuss the findings for each hypothesis.

Do research providers cover fewer companies? (H1)

In the UK market, almost all companies are covered by at least one analyst. In 2018, 540 companies are covered compared to an average of 542 over the past 10 years, with little deviation from year to year. The level was slightly higher in the mid 2000s, peaking at 604 in 2007, before dropping to around 540 immediately after the financial crisis. After excluding investment trusts, which have corporate status but represent portfolios of other investments, almost all companies are covered by at least one analyst. (Prior to 2001, 700-800 companies were covered; the index had over 800 companies compared to around 650 post 2001).

The number and proportion of UK companies not covered by at least one analyst appears not to have changed in the past 10 years. My analysis spans the broad market index and includes small-cap companies. It does not, however, include companies listed in the UK's small/micro-cap Alternative Investment Market. It may also be that sell-side firms are still taking stock of the required level of coverage. Analyst roles might be adjusted based on meetings to review 2018. Since research pricing negotiations are new, and it may take time to negotiate the price of research services, it may take several years for research provision to adjust. A complete evaluation may not be possible until the early 2020s.

Turning to the US market, the total number of stocks was highest in the tech boom, with between 1912 and 1952 stocks in the years 1996-99. The 1900 level was reached again in 2004 and 2005. Coverage dropped over the last decade, dropping below 1800 in 2013 and below 1700 in 2015. 2018 coverage stands at 1,560 indicating that coverage barely extends beyond the S&P1,500. This marks a fall of almost 20% from peak coverage and 11% from 2015 levels. It is interesting to note that US coverage has contracted almost twice as much as UK coverage in the past decade.

The downward trend is steady and does not appear to have changed pace since the announcement of new rules for research payment in 2015. Strictly speaking, fewer companies are covered. Even so, the breadth of coverage remains wide in both markets.

Do fewer analysts cover each stock? (H2)

Investors are likely to be best served when multiple analysts cover each company. Additional analysts are likely to be less biased than the house broker and more likely to issue sell recommendations. It is therefore important to consider the depth of coverage rather than breadth alone.

Figure 1 panel B shows that around 50 UK companies have been covered by a solitary analyst in each of the last 10 years. This represents around 10% of the index if we disregard investment trusts. UK analyst coverage remains broad. The number of companies with sparse coverage has remained stable: almost 150 companies are covered by one, two or three analysts and approximately 200 are covered by one to five analysts. Deep level of coverage, which I define as the number of companies covered by more than 10 analysts, is around 200 in 2018 following a steady decline from a peak of 250 companies was reached in 2011.

Turning to the US market, panel A shows that the depth of stock coverage has been stable over the past decade. More companies received deep coverage in the aftermath of the Global Settlement. Roughly 600 companies were covered in 2001; this rose to over 900 in the early 2010s. In the past five years we see a trend towards shallower coverage towards 2018, 756 companies are covered by more than ten analysts.

The combined effects of the Global Settlement (2003) and the early 2000s recession and stock market trough, which had a significant effect on financial services headcount in the UK. There is some evidence that coverage deepened during the 2000s: fewer companies were sparsely covered; more deeply covered. The 2010s exhibit a stable level of deep coverage. Overall, we can reject the hypothesis that fewer analysts cover each stock both in UK and US.

Research providers may choose other ways to try to provide research more efficiently. Analysts may be required to cover more stocks and could dilute quality. The number of stocks covered by each analyst is, however, of limited use as a quality measure. The adoption of technologies such as machine learning (chapters 2 and 3; Grennan and Michealy, 2018) could allow analysts to expand coverage and improve quality. Like Bradshaw et al. (2017), I expect this area to be an important field in research on analysts in the coming decade.

Are fewer companies excessively covered? (H3)

We observe more significant change when examining those companies which are covered by more than 20 analysts. It seems unlikely that the informational environment would be improved by additional analysts above this threshold. Since few investment managers will be prepared to pay for less valuable research, we can expect less highly-ranked analysts to cease coverage. Around 30 UK companies are covered by 20 or more analysts.

In 2013, nearly 400 US companies were covered by more than 20 analysts and 200 were covered by more than 25 analysts. These figures have dropped to 150 and 300 respectively. Only five

companies are covered by more than 25 analysts in 2018 compared to 25 in 2015 at the announcement of new payment rules.

Evidence from archival sources therefore confirms that brokerage firms have trimmed some of redundant investment research. We know that some brokers have ceased covering the UK market. Others have chosen to focus on particular sectors. Brokers may also have removed analysts who produced less revenue in the form of payments from investment management firms.

We cannot reject the hypothesis that fewer companies are excessively covered. In both the UK and US it seems clear that the termination of research coverage by any single research provider has little effect on the overall informational environment.

Is Optimism bias lower? (H4)

We follow the approach of and Bradshaw et al. (2017), who in turn update the findings of Barber et al. (2006, 2007), by examining coverage and recommendation bias in archives of analyst predictions. Bradshaw et al. (2017) report US analysts' recommendation categories ranging from strong buy (1) through neutral (3) to strong sell (5). From 1993-2000 this average was always above 3.5 and, in 2000, reflecting the exuberant technology stock boom, reached a high of 4. At its lowest, the bias disappeared (reaching 3.0 i.e., neutral) in only two years: the 2002 bear market, and 2008 global financial crisis. The average recommendation has been steady at around 3.5 from 2010-2015. The sample ends in 2015 and consequently no inference can be made regarding the introduction of MiFIDII.

In my analysis, the average recommendation across all UK companies is 2.14 (as at October 2018), very close to the 10 year average of 2.20 within a range of 2.12 to 2.30. The US sample is closely in line with Bradshaw et al. (2017) and I find no shift in the tilt towards optimism.

The relatively low percentage of buys (and high percentage of sells) in 2009 is likely to reflect the financial crisis. The proportion of buy, hold and sell recommendations has remained almost constant since 2010.

We reject the hypothesis that optimism bias is lower. In UK, US and European markets the bias towards buy recommendations has remained at similar levels since the mid-2000s. I note however that few independent analysts supply their data to archives. It is possible that recommendations which are shared only with investment management clients follow a more balanced distribution.

The data availability constraint noted by Barber et al. (2007), remains: few IRPs submit to these databases: Bloomberg lists over 300 brokerage firms but only ten IRPs. Although no comparable database for IRPs exists, a major survey indicates that over 400 IRPs exist. I combine secondary analysis of this survey and case study data reveals a clearer picture of the information provide by IRPs. I examine these in the next section.

Do independent analysts constitute a greater proportion of stock coverage? (H5)

This hypothesis can be rejected based on archival data. Only around 10 IRPs supply data vendors. Archival data cannot be used. Unlike brokers, IRPs are not required to record or publish stock coverage. Bloomberg reveals the identity of all contributing firms. In July 2017, ten IRPs contributed alongside 322 brokerage firms. These include Redburn and Autonomous; often

labelled as 'independent', both firms operate brokerage activities and insist that Extel label them as brokers rather than IRPs in the influential annual rankings of research teams. A search of IBES coverage for major US and European indices revealed a comparable number of IRP contributors. Taken at face value, this would indicate that IRPs are just as rare as Barber et al. (2007) found in the wake of the 2003 Global Settlement. Despite this, the number of IRPs seems to have expanded (see case study A).

Investment managers use estimate archives such as IBES and Bloomberg to check the consensus view, and the stance taken by individual analysts, but will almost certainly access reports and seek analyst interactions. A 2017 survey (questionnaire B) shows that written reports are the most frequently used and highly valued component of analysts' work. These reports are usually sent to investment managers via private email or accessed via password-protected websites hosted by individual brokers or aggregators such as Thomson Reuters or Factset. Vendor data on recommendations tend to be for reference use (e.g., to play "devil's advocate" or to discover "what the street is thinking") or by quantitative funds who use them as an input to their process.

It is clear that very few IRPs contribute their recommendations to vendors such as Bloomberg or IBES. There are some possible reasons for the sparsity of IRP recommendations in vendor databases. Firstly, many IRPs do not produce stock recommendations: fewer than half of the IRPs in case study A make stock recommendations. Instead, these firms are specialists, for example conducting analysis on an economy, an industry a political event or technological innovation. Secondly, most IRPs who do make stock recommendations choose not to supply data vendors and as a result protect their intellectual property from quickly entering the informational environment. Thirdly, most IRP research is, to some extent, exclusive: recommendations and other services are reserved only for their paying customers, thus protecting the IRP's intellectual property and the investment manager's information franchise.

Case study evidence

Since the Global Settlement, US brokerage analysts are required to disclose coverage, and this practice has been mimicked globally. IRPs do not face such a requirement and chapter one revealed that it is very common to for the recommendations to be privately available to clients, or indeed that no stock-level recommendations exist at all.

A subset of IRPs mimic the structure of the investment research department at a brokerage firm. Some employ scores of analysts, divided by sectoral specialisations; they supply investment managers with reports, predictions, calls and meetings. In the past decade, some IRP analysts have ranked among the leading analysts in investment manager surveys (e.g., Extel).

Standardisation does not, however, appear to be the norm. A 2015 survey identified 417 IRPs (questionnaire A) and noted that hundreds more are likely to exist. Examining ten Bloomberg contributors is therefore unlikely to be representative of the industry. Instead, a secondary analysis of survey data shows extensive variety in the types of independent research used by investment managers.

The stock exchange rules associated with the Global Settlement require brokers to publish a distribution of recommendations. As a result, each broker's research universe, including initiation and cessation of coverage, is carefully disclosed to investment management clients. IRPs do not have the potential conflicts of interest inherent in brokerage firms, operate without the full constraints imposed by the Global Settlement and are therefore free from such restrictions. This

freedom allows them to provide different types of coverage. IRPs can set their universe and allocate analysts accordingly. Some augment coverage by producing research on other companies on request; others refuse to define a fixed coverage list at all: IRPs need only inform their existing clients. Merely giving away the name of a company may signal potential interest and might give non-client investment managers a new "idea". Quantitative IRPs provide yet another form of coverage: these firms generate lists or portfolios of trade ideas, valuations, sentiment measures and risk characteristics. In summary, IRPs can provide flexible, exclusive and informally defined coverage.

Other segments of the IRP industry do not attempt to provide company-specific recommendations at all. Most 'Macro' IRPs do not include valuations or recommendations for individual stocks. Some of the longest established IRPs are macro, and this subsector is one of the largest, in number and aggregate revenue, in the UK market. The largest category is, in fact, labelled "idiosyncratic" by the agency broker. Other examples from the IRP invoice dataset (case study A) include political commentary, customer surveys and industry expertise. It appears that many IRPs choose strategies to compliment, rather than replace, broker research. There is considerable redundancy in broker research and so it seems clear that investment managers buy analysis from IRPs; the informational environment is enhanced but the channel of transmission is not via stock coverage. Even so, IRPs provide a mix of competition and complementarity.

Bradshaw (2009) provides a five-stage illustration of a sell-side analyst information process. In the first three stages, the information is collected, processed and used to estimate earnings or cash flows. The final steps are valuation and recommendation. This depiction seems uncontroversial. IRPs who do not provide forecasts must, therefore, limit their activities to some combination of the first two activities. This finding also aligns with investment managers' demands for business analysis rather than recommendations (Beunza and Garud, 2007; Imam and Spence (2016). The buy-side analyst uses this information, then makes her forecasts, valuation and recommendation.

Gleason and Lee (2003) find a considerable lag in price adjustment following publication of research by analysts who are accurate but less well-known; many IRPs are likely to fit this description.

Some IRP research is exclusive to the client, i.e., it is written for the use of a single investment management firm and is not available to competing firms. A large dataset of IRP invoices (case study A) reveals that around half of IRPs who perform fundamental research do so primarily on an exclusive basis, with some firms specialising in this type of work. Research of this type is less likely to duplicate the reports of sell-side analysts and is likely to be distilled slowly into the informational environment.

Some market participants have expressed concern that new research payment rules would reduce the availability of information to investors. In the UK, the birthplace of research unbundling, the number of stocks covered by analysts remains steady although with less excessive duplication. IRPs rarely supply data vendors with their recommendations and are not required to disclose recommendation distributions. As a result, they offer more flexibility in their ability to focus resources. There are now many more IRPs than brokers, and this is may improve the informational environment for investment managers who pay for access.

Limitations

Archival data has numerous limitations, not least rather sparse IRP data. My approach complements archives and makes this limitation less serious. Even so, the following limitations should be noted.

We use archives to assess coverage but make no evaluation of the quality of the research provided. Assessing quality is challenging. forecast accuracy has been used in prior studies but not without challenge (Beunza and Garud, 2007; Imam and Spence, 2016); my own data (chapter 1) shows that accuracy has barely been mentioned in industry discussions on research pricing. Rankings such as Extel and Institutional Investor indicate the relative popularity of each analyst but identifying the top three or five analysts in each sector would add little to the study. Experience and resources offer some potential (Brown et al, 2015); "juniorisation" was a recurring theme at the 2018 Substantive Research conference. Quality remains difficult to measure.

We have studied the coverage of large and midcap companies in two major markets. Investors and regulators are also concerned about the provision of information on smaller firms. US and UK stock markets may be losing prominence compared. Emerging markets such as China are now well established and companies listed there will be attracting a new generation of analysts. Geographic classifications also add complexity. MiFIDII affects the provision of research by and to firms with customers in European jurisdictions. UK investment managers and research providers often have global coverage. Conversely, some UK companies will be covered by analysts who are nor based in the UK. This mismatch exists more genarally, i.e. US and Europe, and for global markets. Research regulation therefore affects the info environment

Finally, I note that regulatory change need not be exogenous. The present case, MiFIDII, affects some firms but not others both in EU and non-EU informational environments. Member state regulators are not uniform in the application and enforcement. Requirements were announced in a series of communications between 2014 and 2017. In short, studies attempting to use research payment changes as an exogenous shock face greater methodological challenges than studies of the Global Settlement. I do not make claims regarding the causal nature of any change observed.

Conclusions

Analysts have for decades played an important role in the informational environment. Their world has undergone dramatic change in the past decade, most recently due to changes in the procedures used to pay for investment research, primarily due to MiFIDII. Market participants have voiced concern that analyst now cover fewer stocks. A structural decline in the profitability of equity brokerage, exacerbated by regulation on research payment, means that many research providers are expected to reduce analyst headcount and produce research on a more limited selection of companies. I present early empirical evidence on stock coverage and consider the role of independent research providers.

We examine change in stock coverage since the announcement of new payment rules in the UK. Archival data shows no economically meaningful drop in the number of companies covered. I see no increase in the proportion of relatively large companies covered by only one analyst, or a small number of analysts. It appears that some of the most intensively covered stocks are now followed by fewer, but still more than 20 analysts. Some surplus coverage has therefore been trimmed and it seems unlikely that this would reduce the available information set on large companies.

Archival analysis reveals modest change in the number of stocks covered by analysts, insubstantial change in breadth depth of coverage and no reduction in the bias towards buy recommendations.

We investigate the effect of IRPs on stock coverage. Since archival sources contain very few IRP predictions, I use secondary analysis of one case study and two surveys to examine IRP stock coverage. Equity IRPs tend to be sector specialists. IRPs are not required to disclose coverage, and often choose not to do so. This strategy protects the value of their ideas. It is also clear that many IRPs draw softer boundaries around their coverage universe; they can initiate or cease coverage without the formal communique required by brokerage firms.

Since their definition of stock coverage is more flexible, the means by which IRPs contribute to the informational environment constitutes the third question in this study. IRPs may or may not provide stock recommendations and many focus instead on business or industry research which investment managers use to make their own valuation and decision. Indeed, the largest category of IRPs provide idiosyncratic services: in many cases they appear to compliment the work. The case study data also shows that independent investment research reveals different categories and that novel types of coverage exist.

References

Abhayawansa, S. Aleksanyan, M., & Imam, S., Millo, Y. & Spence, C., (2018). Earning the 'write to speak': sell-side analysts and their struggle to be heard. *Contemporary Accounting Research.*

Allee, K. D., Erickson, D., Esplin, A. M., & Larocque, S. (2017). Independent analysts' estimates of firm value. Unpublished Working Paper.

Asquith, P., M. B. Mikhail and A. S. Au (2005). Information content of equity analyst reports. *Journal of financial economics* 75(2): 245-282.

Barber, B. M., Lehavy, R., McNichols, M., & Trueman, B. (2006). Buys, holds, and sells: The distribution of investment banks' stock ratings and the implications for the profitability of analysts' recommendations. *Journal of accounting and economics*, 41(1), 87-117.

Barber, B. M., R. Lehavy and B. Trueman (2007). Comparing the stock recommendation performance of investment banks and independent research firms. *Journal of financial economics* 85(2): 490-517.

Beunza, D. and R. Garud (2007). Calculators, lemmings or frame-makers? The intermediary role of securities analysts. *The sociological review* **55**(s2): 13-39.

Bradshaw, M., Y. Ertimur and P. O'Brien (2017). Financial Analysts and Their Contribution to Well-Functioning Capital Markets. *Foundations and trends in accounting* **11**(3): 119-191.

Brown, L. D., A. C. Call, M. B. Clement and N. Y. Sharp (2015). Inside the "black box" of sell-side financial analysts. *Journal of Accounting Research* **53**(1): 1-47.

Buslepp, W. L., R. Casey and G. R. Huston (2014). Did they get what they paid for? The Global analyst research settlement and analyst research quality. Working Paper.

CFA (2014) response to FCA Consultation CP13-17: Consultation on the use of dealing commission rules
https://secure.cfauk.org/assets/3372/The_Market_for_Research_CFA_UK_Position_Paper.pdf

Clarke, J. E., Khorana, A., Patel, A., & Rau, P. R. (2011). Independents' day? Analyst behavior surrounding the Global Settlement. *Annals of finance*, *7*(4), 529-547.

Clement, M. B. (1999). Analyst forecast accuracy: Do ability, resources, and portfolio complexity matter? *Journal of accounting and economics*, *27*(3), 285-303.

diBartolomeo, D. (2013) The Near-Death Experience of Quant Asset Management, Northfield information services commentary, northinfo.com

Fabozzi, F. J., Focardi, S. M., & Jonas, C. (2008). *Challenges in quantitative equity management* (corrected July 2008). CFA Institute.

FCA (2014) 'Discussion Paper 14/3: Discussion on the use of dealing commission regime' http://www.fca.org.uk/static/documents/discussion-papers/dp14-03.pdf

FCA (2017) Our mission: how we regulate financial services
https://www.fca.org.uk/publication/corporate/our-mission-2017.pdf#page=7

Gleason, C. A., & Lee, C. M. (2003). Analyst forecast revisions and market price discovery. *The accounting review*, *78*(1), 193-225.

Gordon, S., 2017, Sellside research would be little missed, *Financial times*, 6 February 2017

Grennan, J. P., & Michaely, R. (2018). FinTechs and the Market for Financial Analysis. Unpublished working paper.

Healy, P.M. (2014). Wall Street Research. *Journal of applied finance*, *24*(2), 6.

Hirst, E., P. Hopkins, and J. Wahlen (2004), 'Fair values, income measurement, and bank analysts' risk and valuation judgments'. The Accounting Review 79(2), 454–473.

Groysberg, B. and P. M. Healy (2013). *Wall Street research: Past, present, and future*, Stanford University Press.

Imam, S. and C. Spence (2016). "Context, not predictions: a field study of financial analysts." *Accounting, auditing & accountability journal* **29**(2): 226-247.

Jacob, J., Rock, S., & Weber, D. P. (2008). Do non-investment bank analysts make better earnings forecasts? *Journal of accounting, auditing & finance*, *23*(1), 23-61.

Kadan, O., Madureira, L., Wang, R., & Zach, T. (2008). Conflicts of interest and stock recommendations: The effects of the global settlement and related regulations. *The review of financial studies*, *22*(10), 4189-4217.

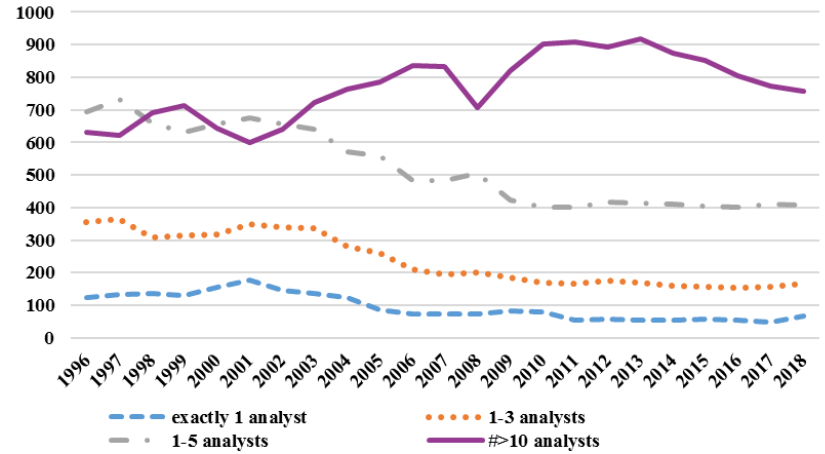
Kay, J. (2016). *Other people's money*. Profile Books Limited.

Wahlen, J. M., & Wieland, M. M. (2011). "Can financial statement analysis beat consensus analysts' recommendations?" *Review of accounting studies*, *16*(1), 89-115.

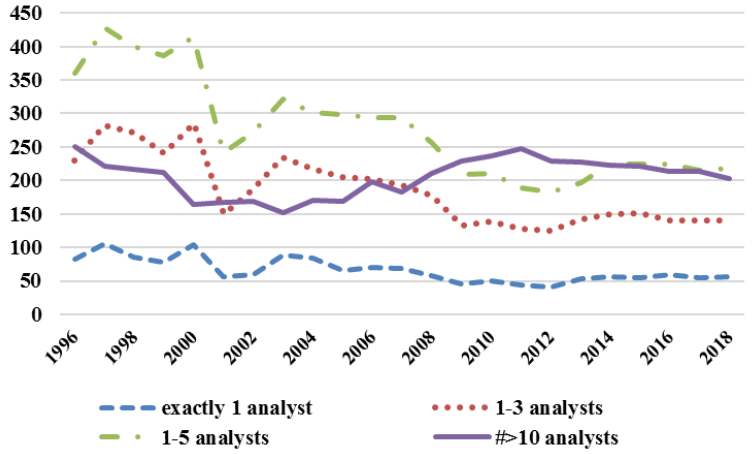
Walker and Flood, 2018, MiFIDII leads to exodus of sellside analysts, *Financial times*, 22 June 2018

Figure 1

Panel A: US depth of coverage

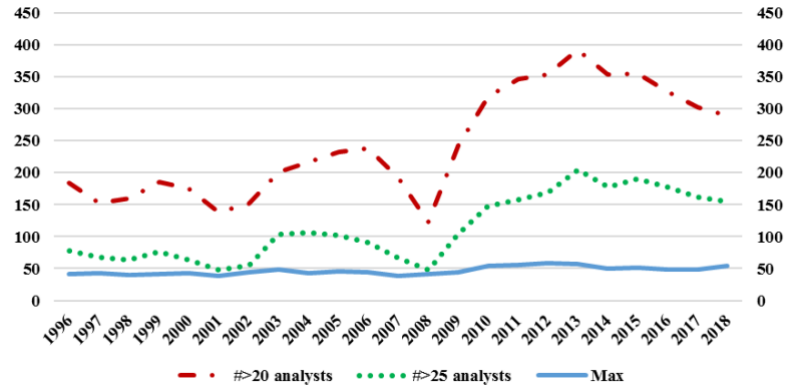


Panel B: UK depth of coverage

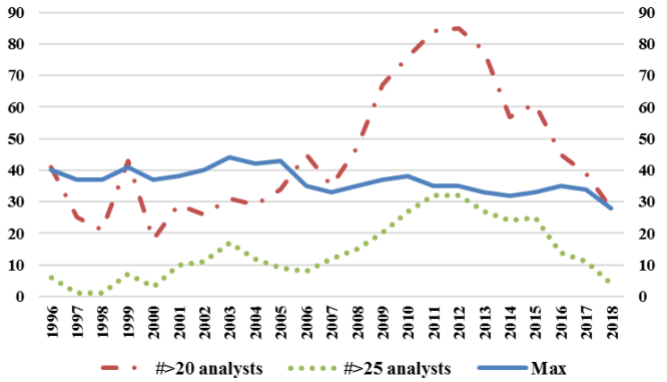


Panels A and B show the number of companies covered by exactly one analyst, 1-3 analysts, 1-5 analysts, more than 10, 20 and 25 analysts at each year end.

Panel C: US intensely covered companies

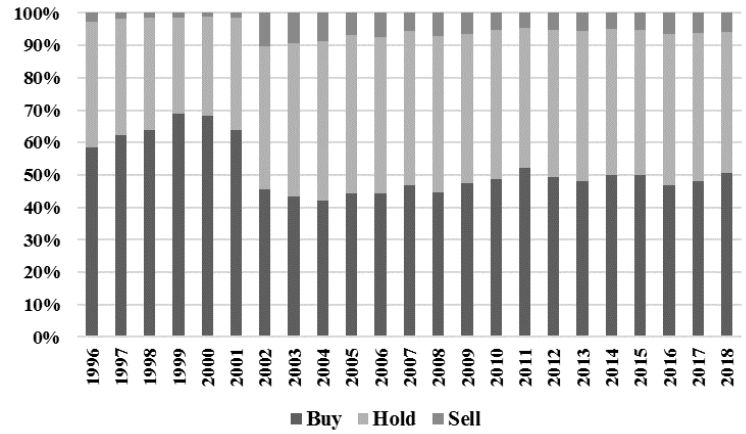


Panel D: UK intensely covered companies

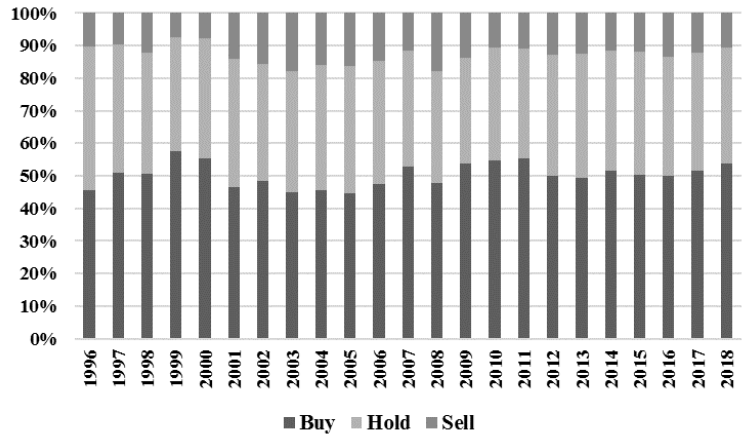


Panels C and D show the number of companies covered by many (more than 20 and more than 25) analysts. Max represents the maximum number of analysts covering any single company.

Panel E: US recommendation distribution



Panel F: UK recommendation distribution



"Buy" includes strong buy and "Sell" includes strong sell.