MARKET DATA REVIEW 2020

THROUGH in sight

Different Vendors, Different Revenue Models

The Top 10 vendors estimated revenues for all business activities grew from in 2010 **$22,835 Million** to 2019 **$34,810 Million**, i.e. a growth rate of **26.7%.**

By Revenue, since 2010 the most successful providers of financial information and market data services are those whose core business services are providing proprietary data, such as Evaluated Pricing, Financial Benchmarks, Indices, Credit Markets and Analytics. This financial information providers group includes ICE Data, IHS Markit, MSCI, plus S&P Global.

During this period these vendors combined revenues grew from **$6,766 Million** to **$14,882 Million** in 2019, or **120%**.

In contrast, vendors with a product suite built upon an aggregated model such as Bloomberg, Factset, IRESS, Morningstar, Refinitiv (ex Thomson Reuters F&R), and SIX Financial have seen significantly lower revenue growth. In fact both Refinitiv's and SIX Financial's revenues declined over the period.

By comparison, these vendors combined revenues grew from **$16,070 Million** to **$19,928 Million** in 2019, or **24%**.

It is no accident that during this period all vendors have invested in developing proprietary services either organically, or through M&A in each of the market segments listed above. ICE Data is the classic example of a financial information provider that is successfully transitioning its strategy from aggregation to proprietary data services. This strategic shift from reliance upon aggregated data services also encompasses, Transaction Services, Risk & Compliance services, and RegTech.

Each vendor is identifying individual market growth niches, which is beginning to have competition implications, but unsurprisingly strategic focus varies amongst the 10 competitors.

MARKET DATA VENDOR BUSINESS & REVENUES REVIEW 2020

Revenue Highlights

THROUGH in sight

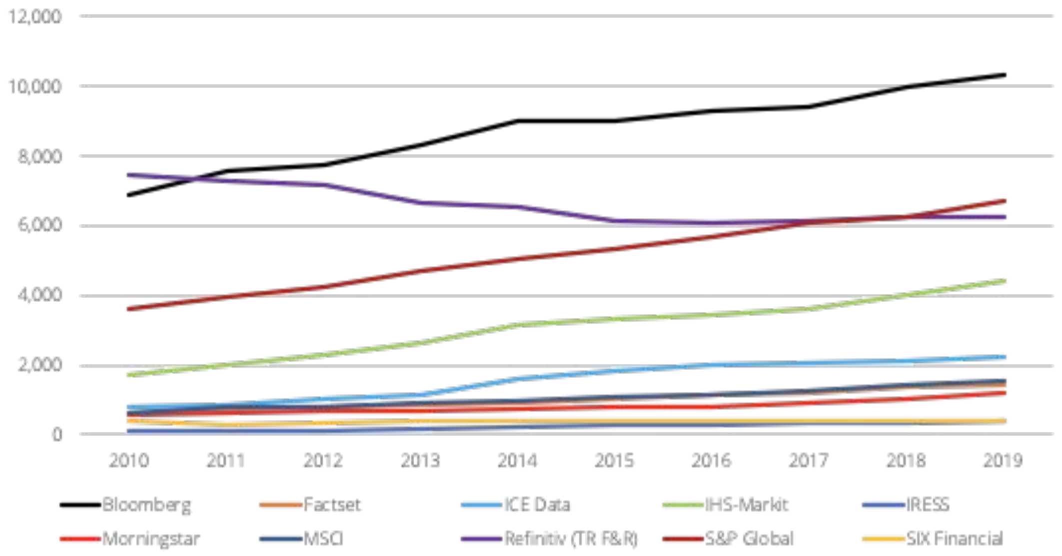
- Bloomberg is the market leader & its market share has remained constant at 30%
- Refinitiv's market share has dropped from 33% to 18%
- ICE Data's revenues have increased the most through acquisition

- Fastest growing vendors services are based on proprietary data
- This creates high margin services which are hard to replicate, or displace
- The professional terminal business faces long term decline as DMA grows

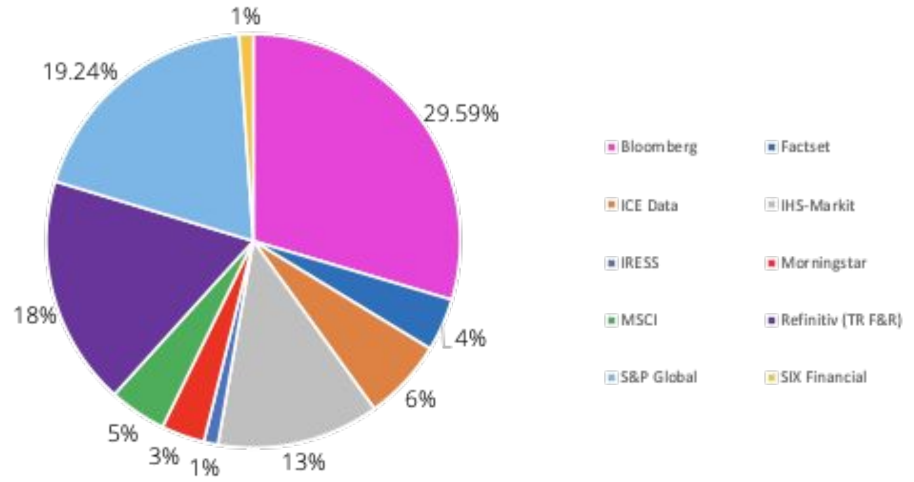
Top 10 Revenue US$M	2010	2019	% Change
Bloomberg	6,900	10,300	49.28%
FactsetICE Data	641	1,435	123.89%
ICE Data	797	2,211	177.54%
IHS-Markit	1,726	4,415	155.81%
IRESS	138	384	178.07%
Morningstar	555	1,179	112.30%
MSCI	604	1,558	157.78%
Refinitiv (TR F&R)	7,441	6,250	-16.01%
S&P Global	3,639	6,699	84.09%
SIC Financial	394	380	-3.58%
TOTALS US$	**22,835**	**34,810**	**26.66%**

TOP 10 MARKET DATA VENDORS US$M REVENUE

Sources: Annual Reports
Bloomberg & SIX Financial are estimates
Refinitiv from Thomson Reuters Annual Report



TOP 10 MARKET DATA VENDORS 2019 SHARE



Market Data once ingested into systems which require streaming access becomes remarkably 'sticky' and hard to dislodge

This places a premium on incumbency and proprietary data that cannot be replicated, therefore guarantees revenue flow

Investors, who are also consumers, recognise this and are valuing financial information providers accordingly

All the financial information providers have valuable data assets

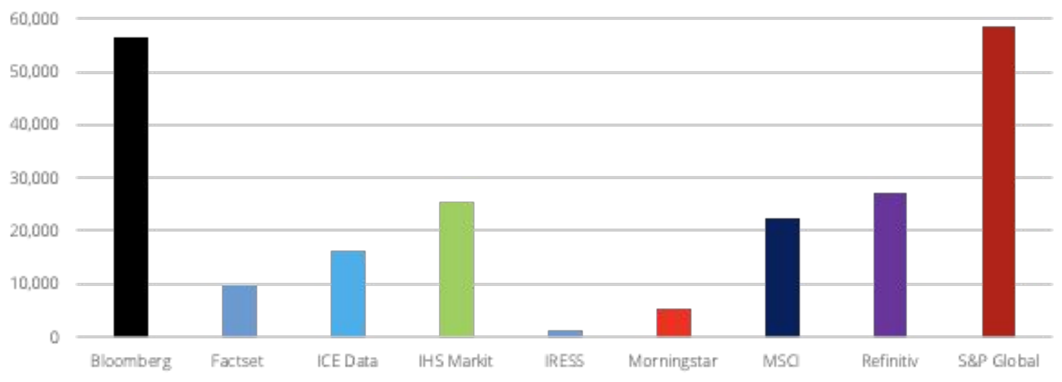
Factset and Morningstar could be attractive merger/acquisition by medium sized vendors seeking client and product diversification

Total Market Capitalisation of Top 9 Vendors	**$222,123 Million**
Average Market Capitalisation	**$24,680 Million**
Average Price/Sales Ratio	**6.45**

Market Cap of 4 Proprietary Data Vendors 1	**$122,301 Million**
Market Cap of 5 Aggregated Data Vendors 2	**$99,821 Million**

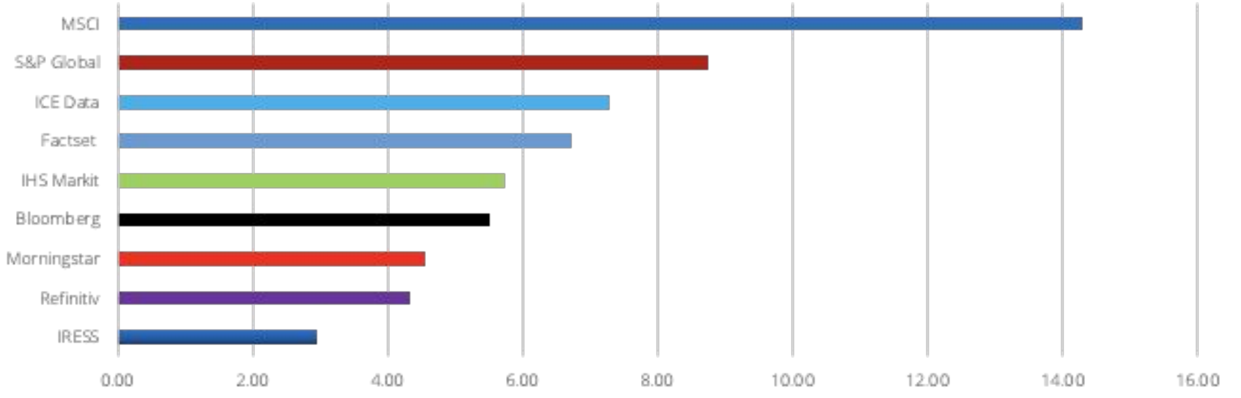
1 ICE Data, IHS Markit, MSCI, & S&P Global
2 Bloomberg, Factset, IRESS, Morningstar, & Refinitiv

GLOBAL MARKET DATA VENDORS MARKET CAP US$M



Bloomberg Market Cap is estimated at 5.5X Earnings based on IDC purchase price.
ICE Data Market Cap is calculated on ICE Market Cap x Percentage of data revenues
Refinitiv is valued at LSE purchase price

PRICE/SALES RATIO



Price/Sales Ratio is the Market Cap at close 12/03/2020 divided by 2019 Earnings.

GROWTH OF MICRO-MONOPOLIES

- By stealth vendors are creating micro monopolies, through incremental M&A
- Bloomberg has taken an interest in RegTech
- S&P is focused on Indices, Credit Ratings, LEIs and premium level market data sets
- ICE purchased Super Derivatives for analytics and valuations, IDC for evaluations and S&P's fixed income evaluated pricing
- IHS Markit leads the credit space in indices, evaluated prices & analytics
- They have created portfolios of unique data which cannot be replicated exactly
- Once ingested into client systems, or used as benchmarks, they become 'sticky' and difficult to displace

CORPORATE ADAPTABILITY

- The provision of financial information is incredibly disparate, and that is reflected in the range of product suites and their content
- In the financial information industry the lower the level of product and content integration the harder it is for management to generate adequate returns
- New technologies require new strategies, the greater the number of legacy systems the harder future transition will be
- Aggregators face the greater challenge to manage the change required
- New markets are emerging, but opportunities are either not being identified, or misunderstood

NEW TECHNOLOGY FOR OLD

- Amongst the main challenges facing all the vendors is how to manage new technology
- Legacy technology is infrastructure heavy and resource inefficient
- Technology change requires substantial investment in time, money, and resources
- There is also no guarantee that any strategy adopted today will be the right one in 5 years given pace of change
- However for all the vendors, new entrants with new cheaper more flexible technologies pose a threat
- Technology offers disintermediation, creates choice, expands the marketplace for sources, vendors, and data consumers

Market Sector Prospects

Aggregated Data Services	1. Quality is king but coverage has its own quality, Bloomberg & Refinitiv are universal aggregators 2. Financial institutions are saturated, but growth is coming in mass markets, HNWI & retail 3. The pie is growing, but in new markets clients willingness to pay top dollar drops
Evaluated Pricing	1. An increasingly important data market as OTC markets need to be priced accurately 2. Methodology and quality are core attributes, leading to high margins 3. ICE Data, IHS Markit are the segment leaders ahead of Bloomberg and Refinitiv
Financial Benchmarks & Original Works	1. IOSCO Principles have driven index providers consolidation, reduction in competition 2. Very high margins, but leading index creators heavy handed in dealing with clients 3. 'Brand' (i.e. FTSE, MSCI, S&P) becoming more important than quality
Analytics	1. It is not only the data, but what is done with the data that creates competitive advantages 2. Access to The Cloud is creating third party solutions providers of analytical services to banks 3. Progress in access to unstructured data, and the new realisation of the promise of 'Big Data'
Risk & Compliance	1. The requirement for risk data is driven by regulatory compliance and client reporting 2. High levels of data consumption for transaction monitoring and surveillance analytics 3. Reporting standards places new emphasis on actual data sources, not the distributor
FinTech & the Baby Techs	1. Driving increased automation of business workflow activities 2. Development of third party solutions providers and outsourcing creating new data consumers 3. Increased data democracy bringing financial markets information to mass market consumers

Market Data Business Trends

Expansion in Usage

1. Financial institutions see market data as a cost, and constantly look to reduce it
2. However, what Banks reduce in one area gets offset by an increases elsewhere
3. Vendors need to expand their client footprint, but few have considered a mass market strategy

Data Assets & IP Ownership

1. Revenue premiums will gravitate further towards proprietary data and higher quality datasets
2. Data Source Owners will become more aggressive in protecting IPRs in a FinTech world
3. Global vendors will enhance and grow their micro-monopolies and create differentiation

Technology

1. Technology is changing data flows from a linear to omni-directional environment
2. Legacy infrastructure is creating cost and technology competitive disadvantages
3. How global vendors invest in new technology is determining future success levels

Disintermediation

1. Technology providing global access creates new channels to market for data sources
2. This reduces entry barriers, creates fragmentation as well as increased consumer choice
3. It reinforces the inherent value of proprietary data

Industry M&A

1. Integrating different market data vendors has always proven problematic
2. Vendors bulking up their product lines through acquisition of competitors' business units
3. Focus now is strategic bolt-ons to existing business rather than wholesale M&A

Third Party M&A

1. LSE purchase of Refinitiv has focused attention on vertical integration in the data industry
2. The future of Bloomberg is now an open topic, but who will/could buy?
3. How attractive, if at all, is an information provider to content drivers such as Google?

All these information providers face new challenges which need addressing, especially as they are all linked together

- The largest financial institutions are saturated with data, with 1 Bank claiming **40%** of the data it receives goes either unused or gets wasted
- This shifts the data sourcing paradigm from aggregation to original data sources
- New technology and distribution channels threaten to disintermediate the aggregators, based on cost and accessibility
- Regulators are now focusing less on how data is being used to what data is being used, its provenance and purpose, the upcoming UK FCA consultative paper is a prime example
- Future growth will come from new markets, i.e. Solutions providers, HNWI, retail and informational distributors, however, these are ***not*** going to bring the same revenue premiums as the existing institutional client base

Impacts

- Ownership of original and unique data and focus on Intellectual Property drives value in the market
- Lightweight technologies and data delivery mechanisms threaten to disintermediate vendors dependent upon mass aggregation of data, this will undermine existing pricing models
- Data driven solutions for FinTech, WealthTech, RegTech, InsurTech, and others are the future, but vendors do not seem to understand these markets and apply traditional (failing) business strategies to non-traditional data consumers
- Banks will increasingly switch data processing from in-house to specialist solutions providers, so relying on the data inputs and outputs only
- Regulators will likely propose licence regimes for market data providers
- Existing lengthy vendor contracts with onerous/unfair termination clauses will come under review pressure

MARKET DATA VENDOR BUSINESS & REVENUES REVIEW 2020

Criteria for Inclusion

THROUGH insight

Bloomberg FACTSET ice IHS Markit iress MORNINGSTAR MSCI REFINITIV S&P Global SIX

Why these information providers?

There are many companies which could justifiably be included in this report, especially as the definitions and criteria for inclusion can be as wide or as narrow as the writer's interpretation desires. Equally none of the companies included can be compared on a true like for like basis, there are crucial differences in structure and service offerings. Here is why we included these providers:

- Primary business is the supply of information services and market data covering global financial markets
- This includes aggregated data services and/or value-added original works such as financial benchmarks, indices and credit ratings, i.e. IHS Markit, Morningstar & MSCI
- The provision of analytics and investment decision tools
- Their clients' primary businesses are participating in global financial markets, though HNWI and retail are becoming important market segments
- Market Capitalisation greater than US$1,000 Million PA
- Global presence in all major and secondary financial centres with primary services offered including:

AGGREGATED DATA SERVICES

EVALUATED PRICING

FINANCIAL BENCHMARKS

ORIGINAL WORKS, I.E. CRA

ANALYTICS

RISK & COMPLIANCE

FINTECH & THE BABY TECHS

MVPs: MOST VALUABLE TRADING VENUES 2020

MEASURES OF SUCCESS

The differences between types of venues, exchanges, electronic trading venues (Multi-Lateral Trading Facilities/MTFs, Automated Trading Systems/ATSs), and inter-dealer brokers (IDBs) has not only been diminishing in many instances they have ceased to exist. What they have always had in common is the facility to enable investors to trade with each other.

While previously comparisons were awkward, they are now relevant as regulators increasingly shoehorn them into ever more rigid categories.

Where there are important points of difference lies in the method of trading, electronic, voice, and hybrid of both. These differences seem to have a material effect on how the investing market views not only how they route their trades but also when measuring the venues themselves by value.

The 3 measures of success we analyse here, are straight revenues, the value investors place on the business, i.e. market capitalisation, and the correlation between the two, the Price/Sales Ratio. This reveals intriguing dynamics. Profitability, the most obvious yardstick has not been included as there are too many opportunities for manipulation within a short timeframe. And the medals go to…

FOR REVENUES

FOR MARKET CAP

FOR PRICE/SALES RATIO

MVPs: MOST VALUABLE TRADING VENUES 2020
TECHNOLOGY DRIVING EFFICIENCY

The large exchanges are becoming hybrids by adopting strategies of first focusing on their core listed instrument business and then acquiring MTFs trading OTC markets electronically (CME/NEX, DBAG/360T, Euronext/FastmatchFX, LSE/MTS, NASDAQ/eSpeed). In the US$500 Million PA revenue space the exchanges predominate by numbers in this report with 13 entrants compared to 4 IDBs, and 3 MTFs

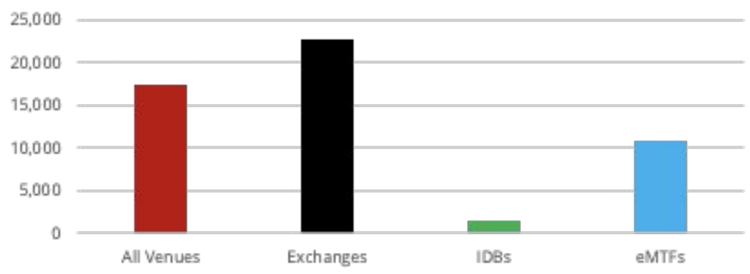
- The exchanges have the highest average revenues (**US$2,435 Million**) and market capitalisation (**US$22,634 Million**)
- The IDBs have comparable revenues to all but the largest exchanges but nowhere near the same level of market cap
- The eMTFs have relatively small revenues but their market cap/revenue (Price-Sales) ratio is superior to both the exchanges and the IDBs.

The eMTFs in comparison to traditional venues are technology intensive, lean staffed, high volume, but low margin, businesses, they rely on liquidity to generate levels of value. The high volumes of observable transaction data then produced enables more accurate models to be developed, analysed then used to drive more trading back to their venues. Naturally licences to use data drives additional revenue to the MTFs

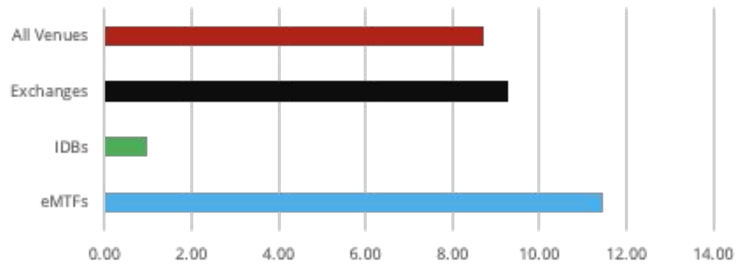
TOTALS	Number	REVENUES 2019		Average	MARKET CAP 04/2020		Average
Exchanges	13	31,652	79%	2,435	294,244	89%	22,634
Inter-dealer Brokers	4	5,714	14%	1,428	5,474	2%	1,368
eMulti-Lateral Trading Facilities	3	2,816	7%	939	32,215	10%	10,738
TOTALS US$M	**20**	**40,182**	**100%**	**2,009**	**391,933**	**100%**	**16,597**

AVERAGE REVENUE US$M Y/E 2019

AVERAGE MARKET CAP US$M 04/2020



AVERAGE PRICE/SALES RATIO 2020



MVPs: MOST VALUABLE TRADING VENUES 2020

VENUES RANKED BY REVENUE & MARKET CAP

THROUGH in sight

The table below highlights the dominance of exchanges in terms of revenue and market capitalisation, and the ability of leading venues to build out their information services. The leading exchanges all have evolved from licencing raw data only to offering value added analytics and index business, even becoming full scale vertically integrated data aggregators. This is a transition the smaller exchanges and IDBs have yet to make

VENUE	Revenue Y/E 2019	2019 Rank	2018 Rank	VENUE	Market Cap 04/2020	2019 Rank	2018 Rank
ICE	6,547	1	1	CME GROUP	64,310	1	1
CME GROUP	4,868	2	2	ICE	48,980	2	2
NASDAQ OMX	4,262	3	3	HKEx	41,322	3	3
DEUTSCHE BŐRSE	3,309	4	4	LSE GROUP	32,872	4	4
LSE GROUP	2,858	5	6	DEUTSCHE BŐRSE	29,047	5	5
CBOE	2,496	6	5	NASDAQ OMX	17,270	6	6
TP ICAP	2,267	7	7	MARKETAXESS	15,890	7	12
HKEX	2,087	8	8	TRADEWEB	11,675	8	9
BGC PARTNERS	1,962	9	9	SIX EXCHANGE	11,290	9	10
VIRTU	1,530	10	10	CBOE	10,990	10	7
SIX EXCHANGE	1,472	11	11	JAPAN EXCHANGE	10,545	11	11
JAPAN EXCHANGE	1,116	12	12	ASX	10,124	12	8
TRADITION	930	13	13	SGX	7,323	13	13
TRADEWEB	775	14	18	EURONEXT	5,420	14	14
EURONEXT	765	15	14	TMX GROUP	4,750	15	15
TMX GROUP	612	16	15	VIRTU	4,650	16	16
SGX	663	17	16	TP ICAP	2,400	17	18
ASX	597	18	17	BGC PARTNERS	1,670	18	17
MAREX SPECTRON	555	19	20	TRADITION	818	19	19
MARKETAXESS	511	20	19	MARKET SPECTRON	586	20	20
TOTAL US$M	**40,182**			**TOTAL US$M**	**331,933**		

THROUGH in sight

Sources: Annual Reports, Bloomberg & ThroughInsight Estimates

THE REVENUE/MARKET CAPITALISATION RELATIONSHIP

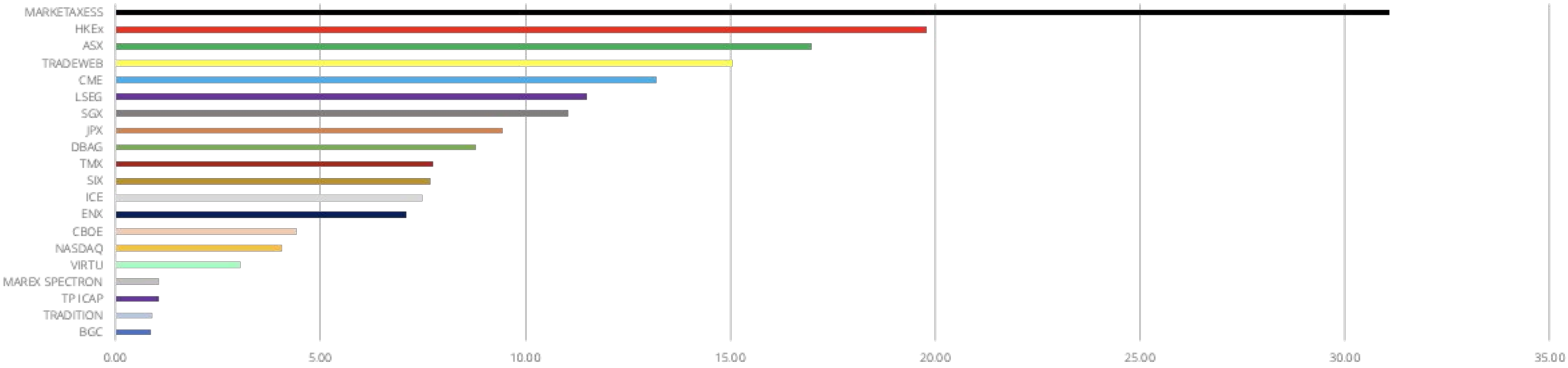
As noted earlier in this report, profitability is not an included benchmark, however, the relationship between market capitalisation relative to revenue generated is. This is the Price/Sales ratio, i.e. market capitalisation at current levels, divided by the latest year's revenue.

The intention is to identify the venues which investors believe have the highest potential relative to their income, and assess why.

Potential reasons include:

1. High P/S rations indicate large, liquid markets open to competition with a broad client base, and structured around a core set of tradable products. There is diversity in asset classes, but they are complementary in trading terms, or for the economy they serve
2. Technology that facilitates trading by investors on a global basis
3. Data services that generate the price discovery for liquidity required and is friendly towards automated trading

PRICE/SALES RATIO 2020



Sources: Annual Reports, Bloomberg & DataCompliance Estimates

The markets in terms of trading and investment have a definite preference for venues which offer, and oriented towards electronic trading with the ability to create information services from these operations, i.e. the exchanges and fully electronic MTFs (ATS). There is also a definite preference for venues with strong balance sheets with equally strong credit ratings, two areas where the IBDs struggle.

The key comparison is the low market cap of the people intensive IDBs and the high market cap technology based MTFs which rely on systems rather than personnel.

The data which is used by quants and others to create their models and analytics represents the sum of human behaviour in highly liquid markets. These analyses are dependent upon data critical mass, the more data, the greater the potential accuracy of the models, which in turns increases the potency of models developed using predictive analytics (AI). This favours large exchanges and very liquid MTFs.

Given this is how many institutions invest, with the number of passive funds by both value and volume now outweighing the size of their active counterparts, it is not surprising these investors view the value of the trading venues in a similar light.

It can be literally summarised as 'Go with the Flow', only the flow looks more like a closed loop. A trading event creates data that gets fed into a model which when analysed creates another trading event, ad infinitum. But is it?

Quants, their models and analytics can be blindsided by none other than what happens out in the real world of humans, the unanticipated interjections of man and nature (COVID-19 anyone?)

There is a definite, if currently undervalued place, for non-electronic markets and inputs, such as markets prone to arbitrary and artificial limitations place upon them, by local governments and regulators, illiquid markets where either demand or supply, sometimes both, are constrained, and where good old fashioned Indicators of Interest (IoIs) are required to stimulate trading. These are markets that need people to think. This inverts the electronic markets paradigm to one of high margin trading with a lower supply of data, but that data comes at a premium.

However for now and the foreseeable future, the markets will continue to place their premiums on large exchanges, electronic market places, especially the leaner, meaner ones, and venues able to leverage their digital assets most effectively.

MARKET DATA REVENUES 2020
SHOW ME THE 50 BILLION?

US$42.2 BILLION

In 2019 the leading 43 players in providing market data services had combined estimated revenues of US$42.223 Billion (50 Billion just trips off the tongue better). This excludes large players from China and Japan, medium tier global market data providers, and the universe of smaller niche companies whose revenues would push towards the US$50 Billion mark.

If we divide the market into 5 segments, market data vendors, exchange data, inter-dealer brokers, index creators, and credit rating agencies, significant variances can be identified. Although this is simplistic as market data vendors also have their own trading venues, indices and other services, plus there is increasing competitive overlap between companies across the segments.

KEY POINTS

- Top 10 Market Data Vendors account for **67%** of market spend, **US$28.145 Billion** (excluding index & CRA businesses)

- The market potential for just raw price data is limited by the number of vendors and investing institutions, which explains to a small degree why exchanges and IDBs share just **9%**, of the total market, **US$4.237 Billion**, but account for **60%** of the **43** suppliers

- Exchanges' 2019 revenues actually dropped 3% over 2018 (FTSE Russell & Quondigo are counted as index creators and ICE Data is included in the market data vendor totals)

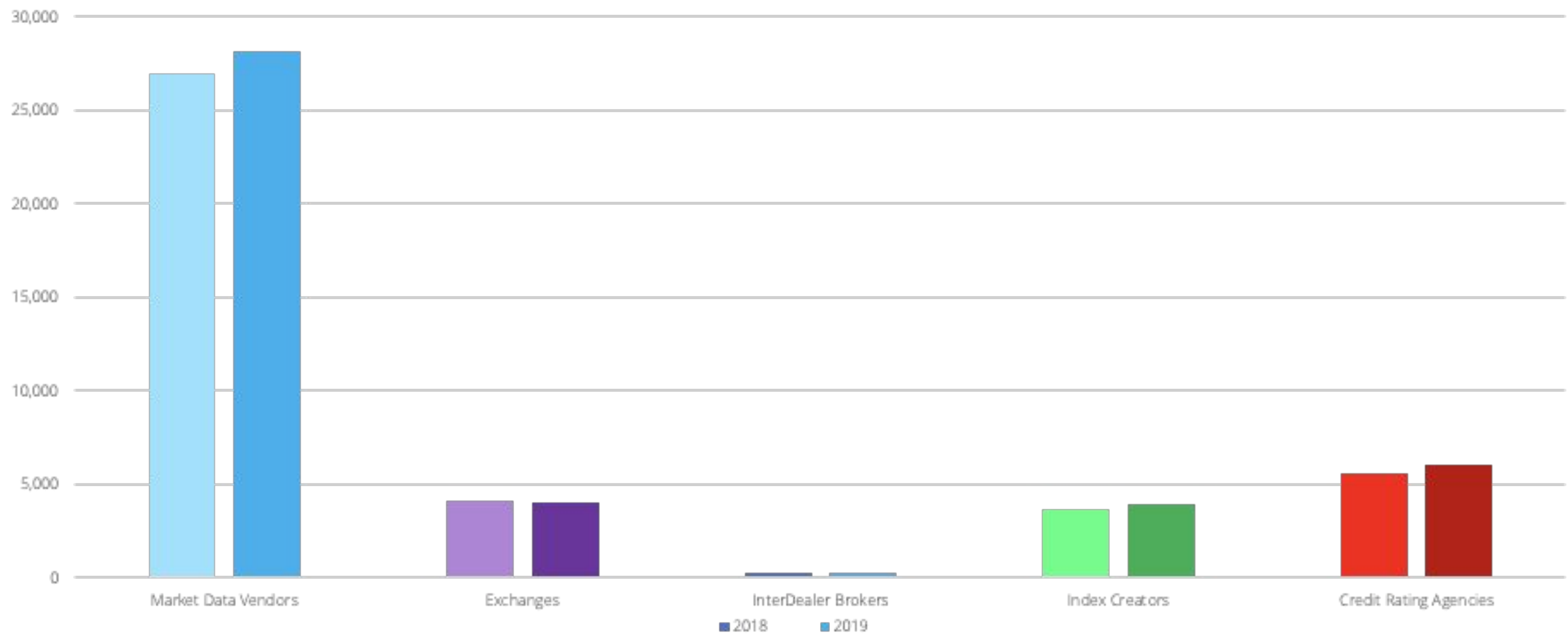
- The **4** index creators and **3** credit rating agencies, original works creators where data IP and licences transition from source to new works account for **23%** of total revenues, **US$9.841 Billion** (S&P is divided into separate Index & CRA entities)

- Creating value around data usage has supplanted the delivery of vanilla data products and services

MARKET DATA REVENUES 2020
SHOW ME THE 50 BILLION?

THROUGH in sight

TOTAL REVENUE BY TYPE 2018/2019 US$M



Notes:
FTSE Russell revenues included in Index Creators, excluded from exchanges
Quontigo revenues included in Index Creators, excluded from exchanges
ICE Data Services included as vendor, excluded from exchanges
S&P Data Services separated from CRA & Indices

MSCI Non-indices and indices split into vendor and index creator
Bloomberg LP, Fitch Publishing's and Tradition revenues estimated

THE ROAD TO US$50 BILLION

Data saturation is an issue that impacts growth, not in terms of quantity, there are mind boggling amounts of data constantly being churned out, but closer examination reveals it includes only limited amounts of new original raw data. The money is all in what you can do with that data.

Exchanges and IDBs are getting the message. Leaders like ICE, and the LSE recognised early on it is not only about the data per se, but what the users do with it. The luxury of large active markets have given the big exchanges a head start their smaller brethren can only dream about, by expanding rapidly into the value-added data world

An area of convergence is by adding value to original price data, i.e. creation of new data, like indices, or providing analytical services. Taking raw data, building actionable insights, investment decision tools, and performance benchmarks

TAKEAWAYS

• In 2019 the average revenue of market data vendors is US$2.815 Billion, but this is skewed by the size of Bloomberg and Refinitiv, and the omission of a multitude of vendors in the sub US$1 Billion pa revenue space

• Most exchanges still make most of their money from vanilla price data services, and once FTSE Russell, Quontigo, ICE Data Services are placed in their individual categories the average revenue is US$181 Million in 2019. Also they are reliant upon Bloomberg and Refinitiv either directly or indirectly for 60%+ of income

• Inter-Dealer Brokers are unsurprisingly the smallest segment, with only 1% of the total market data revenues with an average of US$66 Million, however as a segment when added to OTC trading venues (ATS/MTF) offer exciting potential

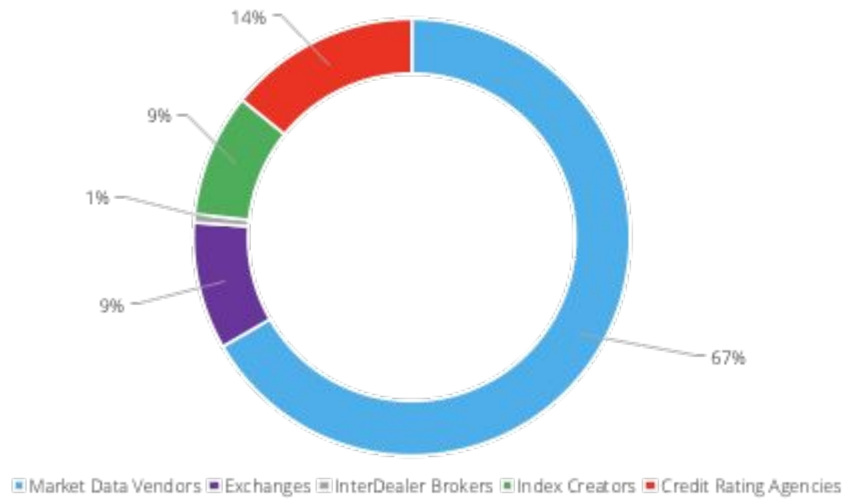
• Equally unsurprising is the success of the index creators with an average revenue of US$965 Million, driven by the growth in passive funds, the need for benchmarks, and opening up of OTC indices, and the rise of a new breed of index creators

• The second highest average revenue segment, are the Credit Rating Agencies, US$1,994 Billion, with only 3 truly global agencies and effectively a closed shop, this is arguably the most profitable market data business to be in

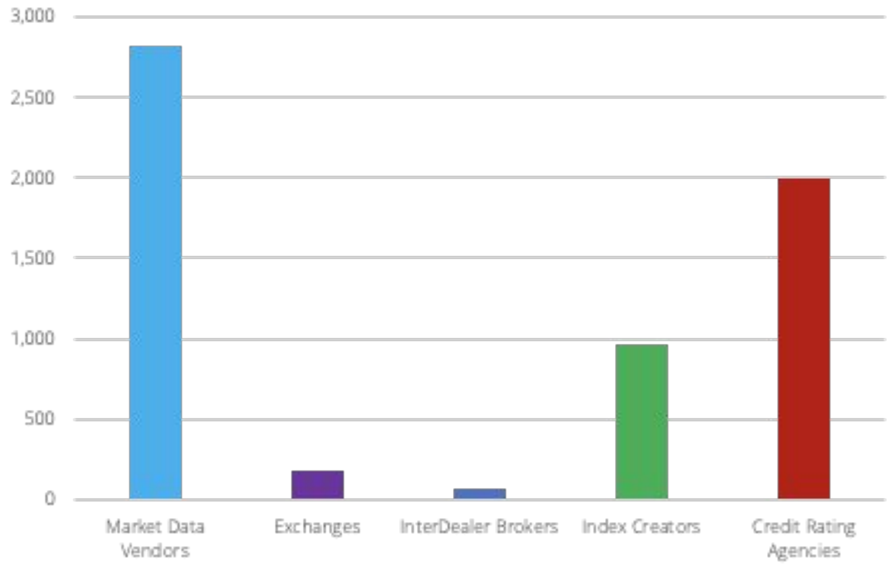
MARKET DATA REVENUES 2020
SHOW ME THE 50 BILLION?

THROUGH insight

REVENUE BY PERCENTAGE 2019



AVERAGE REVENUE BY TYPE 2019 US$M



TYPE	Number	Percentage	2018	2019	Change	Percentage	Average
Market Data Vendors	10	23%	26,965	28,145	4%	67%	2,815
Exchanges	22	51%	4,096	3,975	-3%	9%	181
Inter-dealer Brokers	4	9%	227	262	15%	1%	66
Index Creators	4	9%	3,585	3,860	8%	9%	965
Credit Rating Agencies	3	7%	5,595	5,981	7%	14%	1,994
TOTALS US$M	**20**	**100%**	**40,466**	**42,223**	**4%**	**100%**	**982**

TRENDS

Too often market data gets looked at in isolation from the financial markets which drive its production and to which it serves, so it becomes too easy to miss the key trends that have occurred and only increasing the process, i.e. the growth of automated usage, driven by analytics, the creation of new IP in the form of benchmarks, evaluated pricing, and ratings. So there is value in considering future trends in the near term.

FINAL THOUGHTS/A MALAISE?

• A tiny 4% (admittedly over only 1 year) increase in overall revenues seems to indicate malaise, yet hides the plethora of new specialist data providers springing up, and the willingness of both vendors and exchanges to buy them

• There is data saturation in the leading financial institutions, the number of terminals on desks are at best static, and the demand for datafeeds needed are more the product of competition than growth

• There is danger in market data suppliers competing for a greater share of an existing pie instead of baking a bigger pie

FINAL THOUGHTS/A RENAISSANCE?

• Yet the 43 listed does not encompass the myriad of smaller and innovative companies that exist and are springing up

• It ignores the growth in new IP which is expanding from a lower base than the traditional market data vendors

• Appearing are new types of market data players, the data malls, third party processors and facilitators which are changing the face of market data workflows, such as,

• FinTechs in the Wealth Management space, RegTechs need data to function, none of which has yet to be truly exploited

• Finally the market data industry has become so wedded to financial institutions (understandably) it finds it difficult to embrace a new era of untapped larger markets, i.e. the mass media, HNWI, and retail, both philosophically or by developing business models able to take advantage of these opportunities