

Bloomberg Thematic Protocol

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Bloomberg

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Introduction

Thematic investing is one of the recent evolutions of the market, with investors seeking exposure to companies whose business models are positioned to benefit from the growth of a theme. These include accelerating and new technologies, shifts in consumerism/demographics, health-care breakthroughs and evolution related to the physical environment. Traditional ways of investing entail analyzing historical data and utilize sector, country, and/or size classifications to determine inclusion or exclusion from a particular benchmark. These methods fall short when investing in long-term emerging trends due to the forward-looking nature of those themes and the cross-sectional (whether it is size, sector, or geography) exposure that those themes cover. As such, thematic investing utilizes new techniques, described herein, to translate evolving micro-and-macroeconomic trends into universes that hold companies exposed to a theme.

Bloomberg Intelligence (BI), with in-depth data and analysis from 400+ research professionals on 2,000+ companies, 135+ industries and 21 markets, helps clients make more informed decisions in rapidly changing markets. BI analysts and strategists identify long-term growth trends, and through independent research, identify and categorize the companies exposed to a theme. These companies are assembled into BI theme universes and baskets. The companies hold equal weight within the basket, have been assessed by BI as having an important relevancy to the basket's defined theme and are reviewed quarterly.

The BI Thematic Strategy team constructs the baskets, which feature a rigorous combination of quantitative analysis and qualitative oversight from BI research professionals with expertise in a theme's most relevant regions, sectors, and companies. The methodology, included below, is reviewed at a minimum annually.

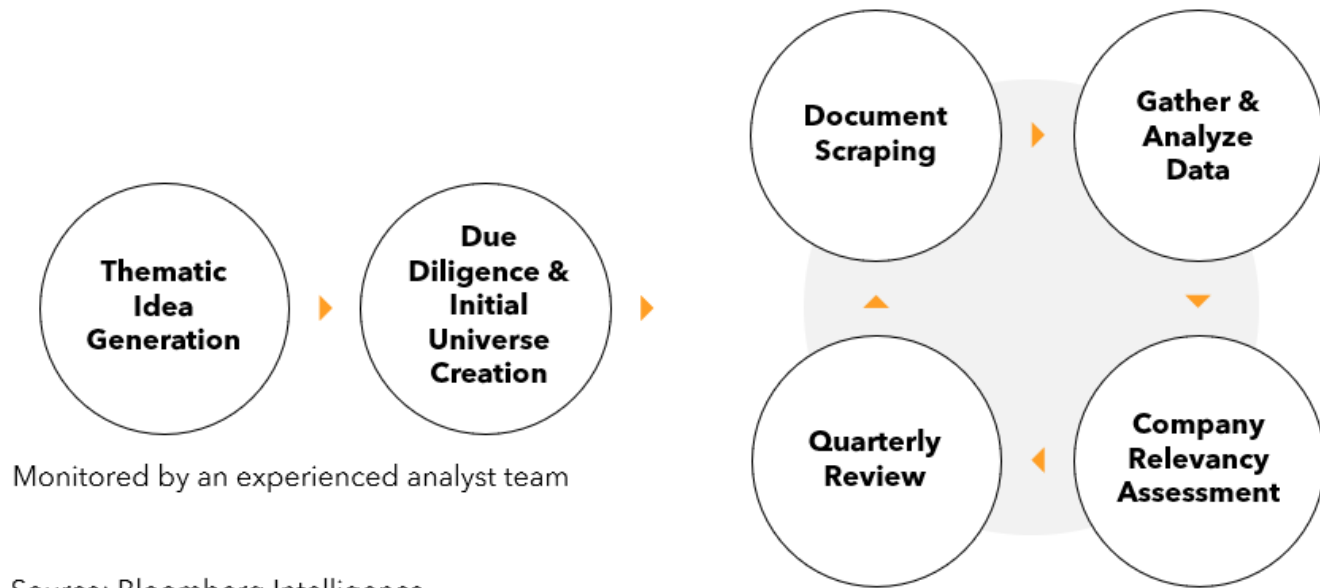
The information in this rulebook describes the process for designing and constructing the thematic baskets that serve as the basis for Bloomberg Indices and is subject to change to ensure the integrity of the basket creation process.

Thematic baskets are available to view on the Bloomberg Terminal on BI BSKT<GO>. For further questions or assistance, please reach out to indexhelp@bloomberg.net or press the <HELP> key twice on the Bloomberg Terminal.

BI Theme Scoping

Once a trend has been identified for scoping, BI analysts define the theme and, with the support of BI analysts, aim to then identify various ways companies may have exposure to a theme. For instance, as a supplier, operator, service provider, or end user. An initial set of companies is created and exposure categories most relevant to the theme are defined. Because theme universes are constructed to capture themes at varying stages of their development, BI analysts employ qualitative judgement, informed by data and BI expertise, in the theme scoping process.

Overview of BI's Basket Creation Process



BI Preliminary Theme Universe Creation

BI theme universes are constructed to most accurately reflect the full scope of the identified theme and, unless specified in scoping, built to be sector, region, and market cap agnostic. The BI theme universe creation process aims to capture the most relevant companies to each theme's development and adoption.

Key-term Document Scraping

Using Bloomberg's document and thematic index search tools that employ Natural Language Processing (NLP) capabilities, BI Thematic Strategy builds a universe of companies. Company filings, earnings calls, investor presentations, and quarterly reports are examples of the types of publicly available company documents where a key-term search process is applied. The information gathered is used alongside other relevant data to help produce a robust universe of companies with expected relevancy to a theme that will be further quantitatively and qualitatively assessed by BI analysts.

Bloomberg Media: Image

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Saved Searches | Actions | Advanced | Export | Settings | Document Search: Results

"5G" | "MASSIVE MIMO" | "SMALL CELLS" | "CARRIER AGGREGATIO..." | "EDGE COMPUTING" | "Last 5 Years"

"BEAM FORMING" | "MILLIMETER WAVE SPE..." | "MILLIMETER WAVE FRE..."

Document Types	Company	Headline	Trend:	#	Source	Date
<input checked="" type="checkbox"/> Transcripts	NOKIA FH	Nokia OYJ: 6-K 2019/07/10		16-K		12:14
<input checked="" type="checkbox"/> Research	PE06795 CH	Tilson Hires Former Connecticut Consum...			PR Newswire	11:59
<input checked="" type="checkbox"/> Filings	1139Z AV	Raiffeisen Centrobank AG: Final Terms 2...		5	Final Terms	11:46
<input checked="" type="checkbox"/> Presentations	1139Z AV	Raiffeisen Centrobank AG: Final Terms 2...		5	Final Terms	11:46
<input checked="" type="checkbox"/> Press Releases	1139Z AV	Raiffeisen Centrobank AG: Final Terms 2...		5	Final Terms	11:45
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	T US	Linux Foundation and LF Networking Ann...			PR Newswire	11:00
		BadVR Awarded Competitive National Sci...			Business Wire	11:00
		360手機次體生存：業務放緩 今年未發佈...			PR Newswire (C...	10:53
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		N/A: Misc 2019/07/10			Misc	10:13
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	TECO2 AR	Telecom Argentina SA: 6-K 2019/07/10		16-K		10:02
		FirstLight Fiber Acquires Todd Cable Cons...			PR Newswire	10:00
	CDV AU	CDV CN: (Part 1 of 2) Further Shallow Hi...			Market News Pu...	09:58
		Finger Lakes Tec: FirstLight Fiber Acquir...			Company Web Co...	09:55

BI Company Relevancy Assessment

BI analysts apply a review and analysis process across the identified universe to inform a BI view on each company's current, and potential near-term, relevancy to the theme across two core categories – revenue exposure and theme exposure.¹ BI Thematic Strategy typically defines near-term as 3-5 years. BI Thematic Strategy has developed this multi-pronged assessment process to allow for the creation of a final universe that best articulates the nuances of each theme. For example, while a company may be assessed to have low revenue exposure to a theme, BI analysts might assess the company as being integral in driving adoption of the theme.

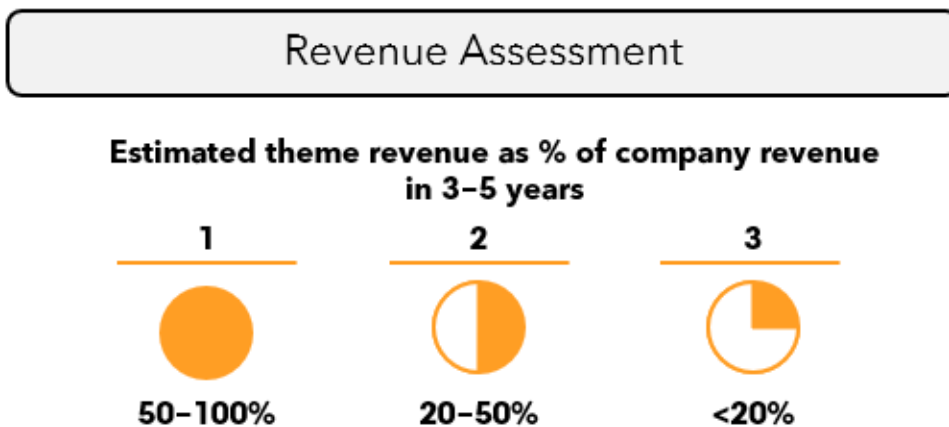
In the review process, all companies are assessed on a scale from 1 (most exposed) to 3 (least exposed) in each of the revenue exposure and theme exposure categories. Companies must have a combined revenue and theme assessment of less than or equal to 5 to be included in the final universe.²

BI analysts are integral in supporting this detailed assessment across all universe companies. Final assessments reflect a combination of quantitative analysis and BI analysts' judgment and experience in the industry.

Revenue Assessment

BI's revenue assessment reflects BI's view of near-term revenue exposure of each company to a theme and appropriate sub-classifications as a percent of the company's total revenue. BI analysts leverage publicly available company data such as financial disclosures, and where necessary other available research, to assess a company's near-term (3 to 5 year) revenue exposure to a theme.

An assessment of 1 reflects BI's assessment of a company being more than 50% of revenue tied to the theme, 2 means 20-50%, and 3 means less than 20%.



Theme Assessment

BI's theme assessment aims to capture a view on a company's positioning and ability to execute within the competitive landscape of a particular theme. Theme assessment relies on the availability of fundamental data for each company and on BI analysts' expertise and history following industries and companies.

To support the assessment process, BI Thematic Strategy captures across companies a series of data points to inform a perspective on relevant issues such as a company's potential ability to ramp production, relevant capital allocation trends, current relationship and reputation with customers, and access to capital. Quantitative operational data is used to assess companies wherever possible, but BI analyst assessment of other publicly available company information and industry knowledge is also considered. Company financial statements and presentations, as well as relevant industry coverage and BI or Bloomberg New Energy Finance (BNEF) research, are leveraged through this process. Key-term searches can often serve an important role at this stage of final universe creation process, particularly for earlier-stage themes where there are limited theme-specific company disclosures.

¹ In circumstances where it is determined by BI that uncertain future regulation could play an important role in a theme's development, BI's policy analysts will apply an additional regulatory assessment employing a scale of 1 (minimal impact from potential regulation) and 3 (high vulnerability to policy shifts).

² For themes that have an additional regulatory exposure assessment, a company with an assessment of greater than 5 could be included in the final theme universe to account for the inclusion of the regulatory assessment.

Companies are assessed on a scale of 1 (high theme relevancy) to 3 (lower theme relevancy).

3 Thematic Assessment

As an example, analysis across three dimensions



Regulatory Assessment

BI makes a regulatory assessment only for select themes where BI policy and/or industry analysts expect potential government regulation could affect a company's operations, as it relates to a theme, within the next couple of years. Examples may include restrictions on operations, data and disclosure requirements and regulatory classification of products and services.

An assessment of 1 implies minimal impact from potential regulation. An assessment of 2 indicates an uncertain threat from regulation. An assessment of 3 represents high vulnerability to policy shifts. Regulatory assessments are not made for themes where BI does not see material regulatory or policy risks.

Criteria Setting and Data Collection

BI analysts determine the criteria and data that best suit the specific circumstances of the theme and best enables a comprehensive assessment of companies that have been captured in a theme universe. Data availability, and relevancy, can vary significantly across themes. BI analysts collect data on companies from corporate filings, terminal functions, and where necessary other data relevant to the theme.

BI Theme Universe Finalization

Upon BI's completion of the revenue and theme assessments, a cumulative assessment that meets the criteria defined in the theme's scoping determines inclusion in the final theme universe. All companies are assessed on a scale from 1 (most exposed) to 3 (least exposed) in each of the revenue exposure and theme exposure categories. Companies must have a combined revenue and theme assessment of less than or equal to 5 to be included in the final theme universe.³

BI Thematic Strategy will publish final universes, along with their revenue and theme relevancy assessments.

BI Theme Basket Finalization

Upon BI's completion of the revenue and theme assessments, a cumulative assessment that meets the criteria defined in the theme's scoping determines inclusion in the basket. Companies must have a combined revenue and theme assessment of less than or equal to 4 to be included in the final basket.⁴

BI Theme Maintenance

Working Group

The working group is comprised of BI analysts and associates, supported by the Thematic Research Strategy team. The Thematic Strategy team works in conjunction with BI industry analysts to maintain BI's theme offering, which includes potential deprecation of themes that are determined to no longer hold relevance. The working group may change to reflect changing coverage among analysts or other circumstances.

³ For themes that have an additional regulatory exposure assessment, a company with an assessment of greater than 5 could be included in the final theme universe to account for the inclusion of the regulatory assessment.

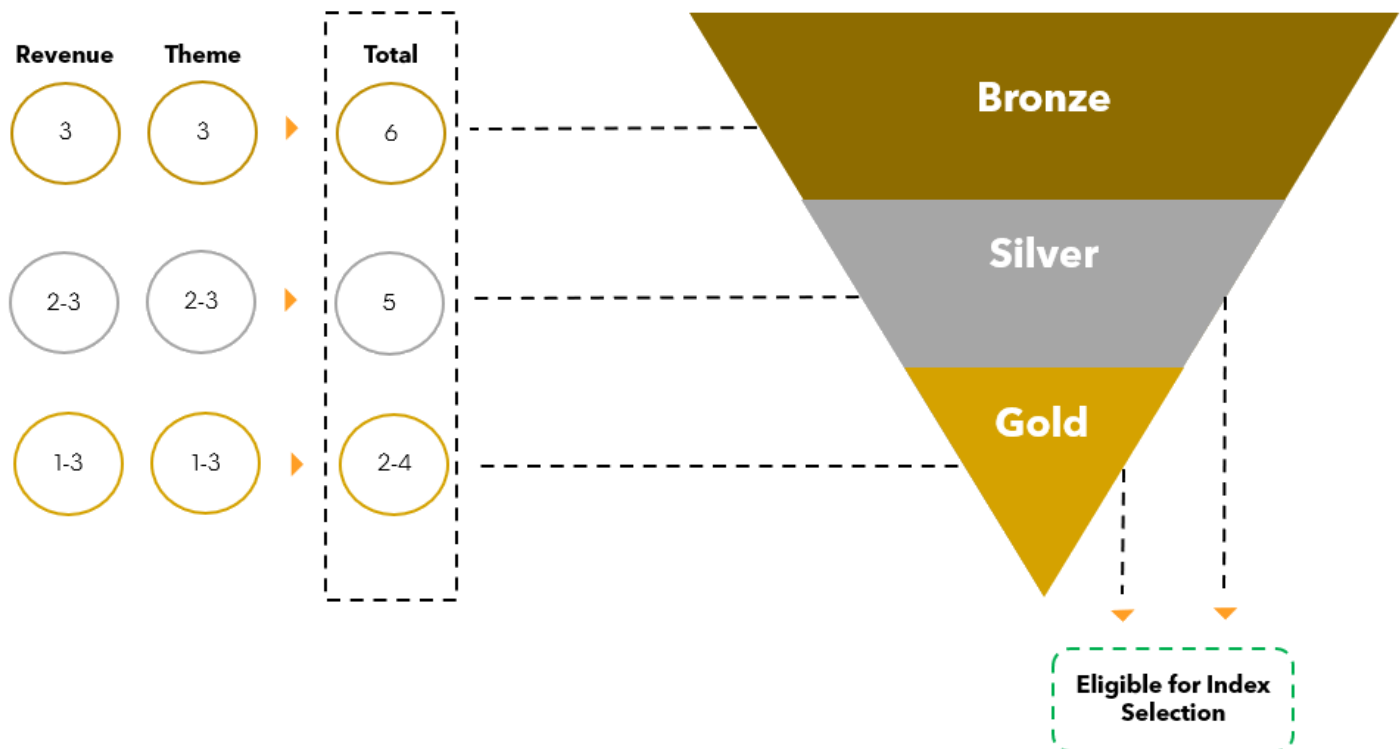
⁴ For themes that have an additional regulatory exposure assessment, a company with an assessment of greater than 4 could be included in the final basket to account for the inclusion of the regulatory assessment.

Quarterly Rebalance

BI theme baskets and their respective final universes are updated quarterly. BI Thematic Strategy monitors for relevant developments in both themes and companies, which supports the quarterly review and rebalance discussions with BI analysts, as well as any ultimate decisions on the addition or removal of companies from the theme basket or final universe. The working group meets quarterly to review BI theme basket and universe membership, and theme developments. The group finalizes any potential membership changes and additions and removals of constituents resulting from the review and rebalance are effective on the last Friday of each calendar quarter.

Index Tying Process

Upon BI's universe finalization, Bloomberg Index Services Limited (BISL) groups combined assessment values into the following tiers: Gold, Silver, and Bronze. A combined assessment value between 2 and 4 equates to Gold. A combined assessment value equal to 5 equates to Silver. A combined assessment value equal to 6 equates to Bronze. Only securities meeting the criteria for Gold and Silver are eligible for inclusion in a particular index. Please refer to the specific index methodology for more details.



Appendix A Company Examples

Example 1: Block, Inc. (SQ US Equity), Future of Finance BI Basket

Step	Criteria	Value
Exposure Category	("FINANCIAL FOUNDATION" OR "TECHNOLOGY SOLUTIONS" OR "INFRASTRUCTURE")	("FINANCIAL FOUNDATION")
Revenue Assessment	57% of Revenue from Bitcoin as of FY21	("1-MOST FAVORABLE")
Theme Assessment	Payments, exchange revenue at top quartile compared to peers; competitive advantages include 44 million monthly transacting users	("1-MOST FAVORABLE")
Regulatory Assessment	potential regulations would not have a meaningful impact on cost structure, but awaiting agency guidance on BNPL and crypto rules	("1-MOST FAVORABLE")

Example 2: Walmart, Inc. (WMT US Equity), Digital Payments BI Basket

Step	Criteria	Value
Exposure Category	("CONSUMER SERVICES" OR DIGITAL WALLET" OR "MERCHANT SERVICES" OR "BANK" OR "POS HARDWARE" OR "INFRASTRUCTURE")	("DIGITAL WALLET")
Revenue Assessment	Efforts to expand FinTech offerings into a "super app"; current platform primarily a digital wallet; currently relatively small revenue, but could grow to high single digits with scale in next 5-10 years	("3 - LEAST FAVORABLE")
Theme Assessment	Acquiring spree of several FinTech startups; higher potential to monetize payments and gain share from smaller pure-play peers with over 1.6mm US employees and 100mm weekly shoppers	("1 - MOST FAVORABLE")

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