FinTech

Building a Framework for Innovation and Interoperability

Preparation Meets Opportunity

TABB GROUP

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Key Findings

TABB Group's recent outreach found that financial organizations are challenged by the current state of having multiple security masters and often suffer real operational pain due to inaccurate or insufficient financial instrument identification. From an operations standpoint, resources that are devoted to cross referencing and maintaining numerous identifiers combined with those resolving trade failures and reconciliation mismatches are costly.

HIGHLIGHTS OF THE STUDY:

- TABB Group's electronic outreach and interview methodology comprised over 180 financial services entities, including buy-side, sell-side, asset servicers, exchanges, central securities depositories and vendors in the data industry across the globe.

- The majority of firms at 53% of those surveyed maintain at least two security master files containing the same security identifiers, but often for different purposes such as for trading or portfolio accounting. 10% of respondents maintain more than 10 security masters.

- Poor data quality and the resulting difficulties in tracking data lineage is the biggest challenge related to traditional instrument identification practices, with 95 respondents - Investment managers, brokers, and hedge funds in particular - listing it as one of their top three pain points.

- Half of firms attribute at least 1% of their overall total securities trade failures and almost 60% of respondents link at least 1% of their total reconciliation exception issues to incorrect security identification.

- Almost half of respondents expect their organizations to spend more on symbology licenses over the next two years, citing regulatory demands and expansion into new asset classes as the reason. Only 13% estimated that their costs would decrease.

- While two-thirds of those surveyed do not currently use the Financial Instrument Global Identifier (FIGI) within their organizations, almost 25% of asset manager and 20% of hedge fund respondents said that they have actually adopted it for reference data maintenance and to enable accurate corporate events tracking.

- The majority of the industry – particularly buy-side and sell-side capital markets firms — agrees that there is currently a need for such a global standard identification methodology with the biggest driver being data quality improvement within the enterprise.

- One third of respondents cite the position of incumbents as the greatest barrier to adoption of a global standard identification methodology, followed by the perception that the need to change legacy systems would be too challenging.

- An open financial instrument framework not only can address operational issues such as mapping, cross referencing, trade failures and reconciliation but can also serve as the underpinning for innovation and interoperability in capital markets.

Introduction

The financial services industry has aspired to attaining standard, unique financial securities instrument identification and it has been the cash cow of providers of market data for decades. Similar to a personal identification number (think social security or NHS number),that aims to uniquely identify individuals in certain parts of the world, tradeable financial instruments are often assigned identification numbers by multiple entities to enable performing different functions across the transaction lifecycle. However, those numbers do not provide context around family relationships. The resulting confusion has long wreaked havoc on capital markets, as well as middle and back offices, resulting in inefficiencies caused by manual data exceptions processing and errors, which can be costly to a firm. Additionally these numbers, along with their associated reference data and price information are not free. Licenses and subscriptions can be costly to a firm, along with the army of staff required to maintain and map all of these codes to one another within closed systems, and to ensure that all internal platforms are in sync. Market data spending in 2015 was estimated to be over $26 billion. Spending on reference data and pricing feeds increases by about 2% each year according to industry estimates. And as the universe of traded securities increases globally, so does the upkeep required to manage them. Not only do financial instrument identifiers need to be mapped to each other, they also each typically employ a different data model. In real-time data for instance field one from one vendor could be last price and field one from another vendor could be daily high, yet both may be labelled by their independent data dictionaries as "end of day price". This inconsistency makes programmatic use of different data sources challenging. Application programmers need to line up the data models if they want to use more than one source, adding to the complexity of ensuring consistent data quality, especially across disparate data dictionaries.

This mapping exercise extends to outside of a firm's walls as well. Investment managers must ensure that they agree with the data of their brokers and of their asset servicers across the lifecycle of a transaction and, equally important, beyond. If these entities don't refer to the same financial instrument in the same way, transactions can fail to settle in the market; securities can be priced incorrectly — impacting a fund's net asset value; discrepancies can occur that result in trading the wrong security, and corporate changes can be missed. There is disagreement on exactly what underlying information should be associated with a financial instrument, which makes it challenging to identify it as a traded security. And as if this was difficult enough for securities traded on exchanges, the challenges associated with over-the-counter securities are exacerbated by the fact that there often is no identifier assigned in the marketplace. In this case, firms make up their own in-house version of a security code in order to place the trades in their systems. Their counterparties may or may not choose to agree with that code, but will most likely invent their own, resulting in another layer of data mapping.

Another crease in the wrinkled fabric of instrument identification is that regulators are now getting involved in mandating the usage of particular symbologies for particular asset classes. Firms thus have little choice but to maintain that identifier and to map it to any others that they may use for other purposes.

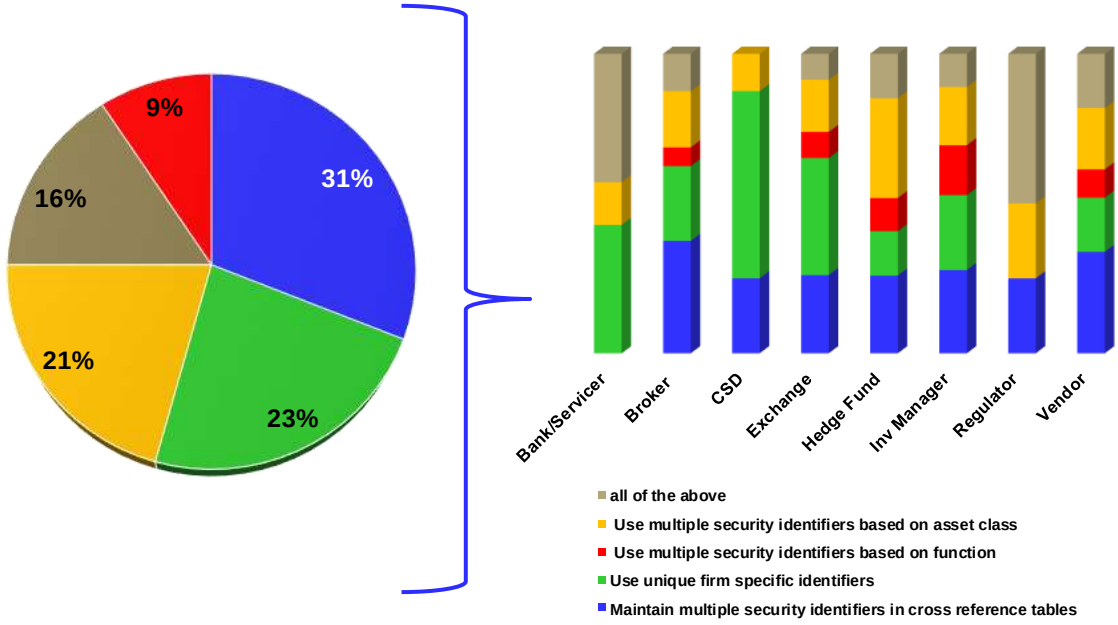
Institutions can't seem to escape the need to manage, translate, map, and reconcile reference data and security identifiers. To date, the financial services industry has lacked the need or the will to change this legacy, and largely accepts the costs as part of doing

business with little added value. However, today's emerging financial technology environment decrees that a common data set is a prerequisite to achieving true industry interoperability, and the efficiencies and cost savings that will result. Now is the time to embrace a new open framework that will get us there.

Industry Drivers and Challenges

In an environment of increased regulatory scrutiny, broken cost models, and fluctuating revenues, the financial services industry is on the brink of a new technological era. Driven by demands for transparency and the need to drive down margins, technical advancement in the areas of trade settlements and clearing appears poised to transform the front, middle and back office as well as the industry as a whole. It is well accepted that a barrier to achieving innovation is the lack of a common structured way of communicating across trading counterparties. Technology such as blockchain — where trade data is immutable and irrevocable must employ a common language that enables connected systems to communicate and agree with each other. Otherwise consensus of validation won't occur, and the chain is broken.

Exhibit 1
Overall Security Identifier Approach | Current Approach by Firm Type

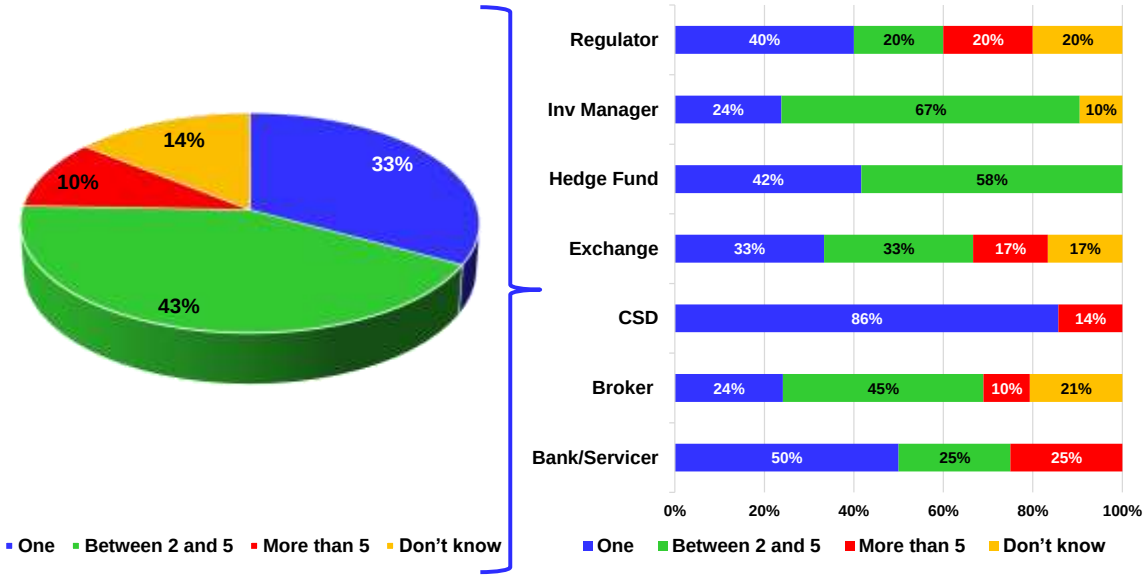


Source: TABB Group

In the meantime, data professionals across all segments of the financial industry are struggling on a daily basis to maintain data quality. In a survey to over 180 industry practitioners from banks, brokers, central securities depositories and exchanges, hedge funds and investment managers, regulators and vendors, it was determined that every financial institution maintains multiple security identifiers, including unique firm identifiers as shown in Exhibit 1. We received 15% of responses from Western Europe, 8% from the Asia Pacific region, 10% from the United Kingdom, and 65% from North America, with the remainder of 2% received from Latin America.

As if this wasn't cumbersome enough, the majority of firms at 53% of those surveyed maintain more than two security master files containing the same security identifiers, but for different purposes, as shown in Exhibit 2. One-quarter of the asset servicers we reached out to maintain more than 10 security masters. All of these files need to be managed in parallel to ensure that they are reconciled and in agreement. Two-thirds of investment managers have between 2 and 5 security master files that require maintenance. Over half of the hedge funds, brokers, and banks we reached out to have the same number.

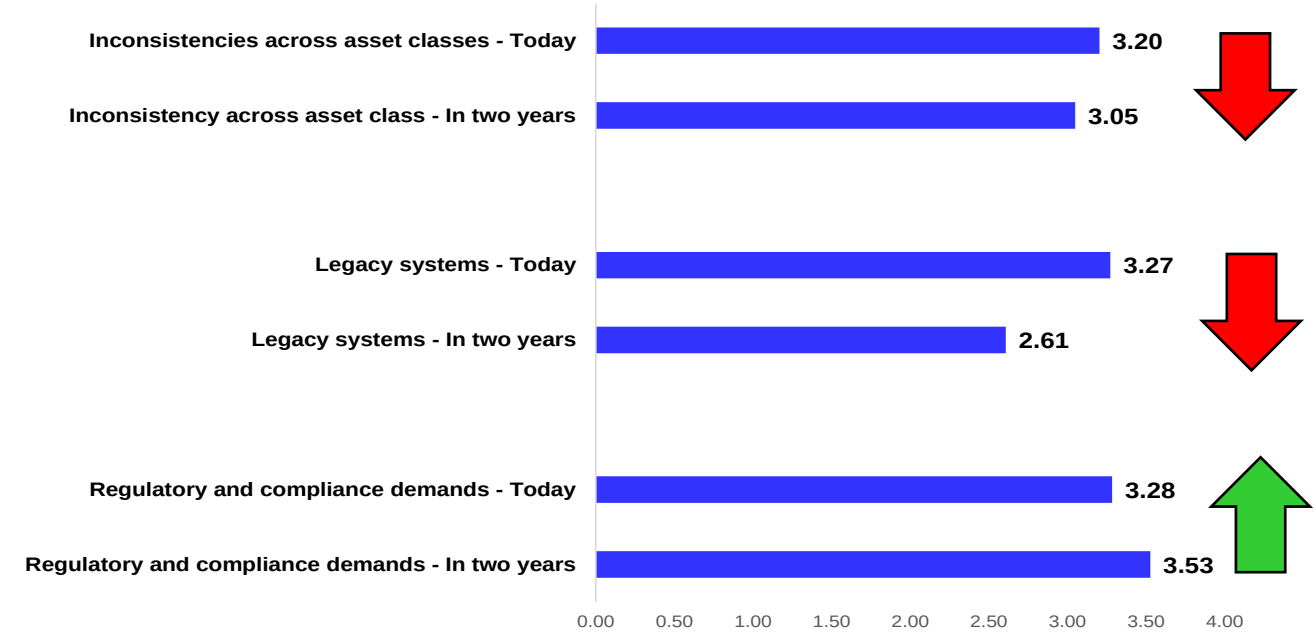
Exhibit 2
The Number of Security Master Files| Security Master Files by Firm Type



Source: TABB Group

When asked about the reasons for using multiple identifiers today and how they expect that to change in two years, regulatory and compliance demands ranked highest for both timeframes, and it also was the only category respondents thought would become more important in two years (see Exhibit 3). Although the use of legacy systems today is seen as a driver, respondents saw the importance diminishing in two years as they seek to upgrade platforms. Some expect to see more consistency across asset classes over the next two years; perhaps as regulators begin to mandate the use of ISIN for many over-the-counter securities.

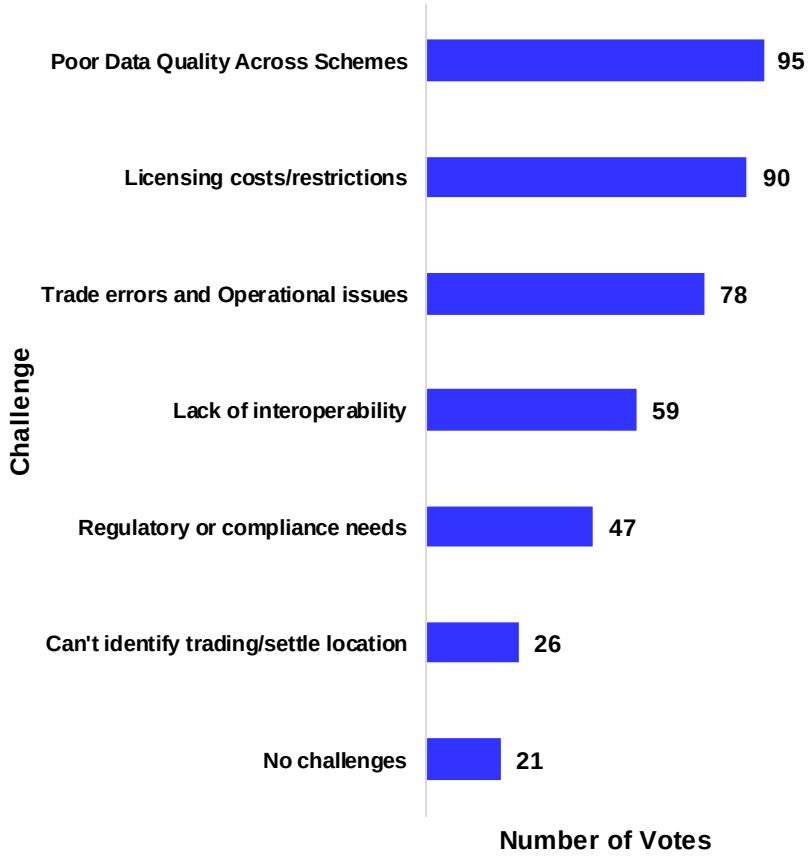
Exhibit 3
Drivers for Using Multiple Identifiers Today vs. in 2 Years on a Scale of 1 to 5, with 5 Being Highest



Source: TABB Group

Almost all of the buy-side and sell-side firms we spoke with reported challenges associated with the current security instrument identification process. Central securities depositories (CSDs), exchanges, and vendors comprised the majority of firms that reported having no related challenges, which was a relatively small category. The main impacts of the current approach were narrowed down into six main types as outlined in Exhibits 4 and 5.

Exhibit 4
The Top Challenges/Impacts of the Current Security Identification



Source: TABB Group

1. **Poor data quality**: Investment managers, brokers, and hedge funds assigned their highest value to the poor data quality and impact to data lineage that results from the need to map and cross-reference multiple security identifiers, and to maintain multiple security master files. Vendors ranked it as their second highest concern as they need to maintain data across multiple sources, and in turn supply it to investment managers and brokers who depend on that data to conduct their business.

> *A challenge for us is "maintaining status quo symbology for internal and external consumers."*
>
> — Data Executive, North American Investment Manager

2. **Licensing costs and restrictions**: Vendors in particular gave their highest number of votes to this particular challenge since they incur redistribution fees. Not surprisingly, investment managers and hedge funds ranked it second highest.

3. **Trade errors and operational issues**: This category was tied for the highest chosen by investment managers, and was second highest as identified by brokers and third by hedge funds. This result closely links to those related to poor data quality as it was cited a key cause of trade and operations exceptions.

4. **Lack of interoperability**: The majority (56%) of responding exchanges gave this category as one of their top three instrument identification challenges. Most of this majority represented single market exchanges.

5. **Regulatory or compliance needs**: Vendors, hedge funds, and brokers made up the largest voting bloc for regulatory compliance. Investment managers gave this a relatively low priority in comparison.

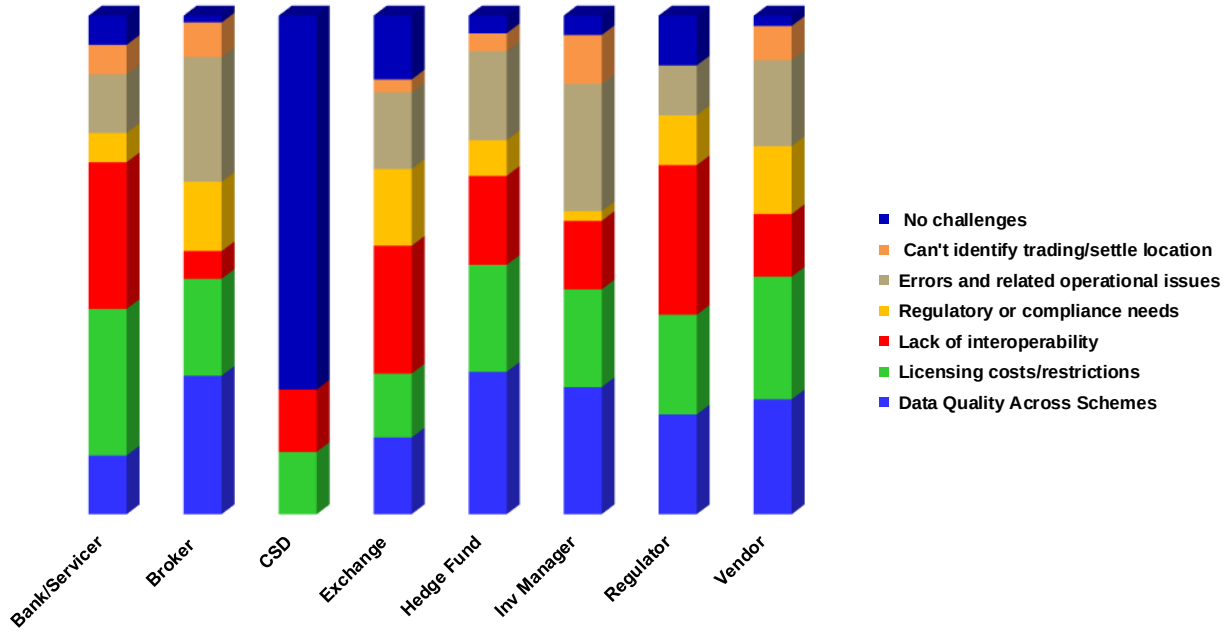
6. **Inability to identify trade or settlement location**: Investment managers and brokers comprised the majority of this category.

Some respondents felt that they had no challenges related to security identification, and were happy with their current process. CSDs comprised the largest percentage of this segment, with almost half of them — all located outside of North America — citing that they only used ISINs. Others responded that they only serviced one asset class and therefore only used one code. Additional challenges mentioned related to the sheer volume of instruments and to the lack of good information on corporate actions and new issues.

Our biggest challenge is the "inability to track when an instrument is no longer tradable."

— Trader, North American Broker

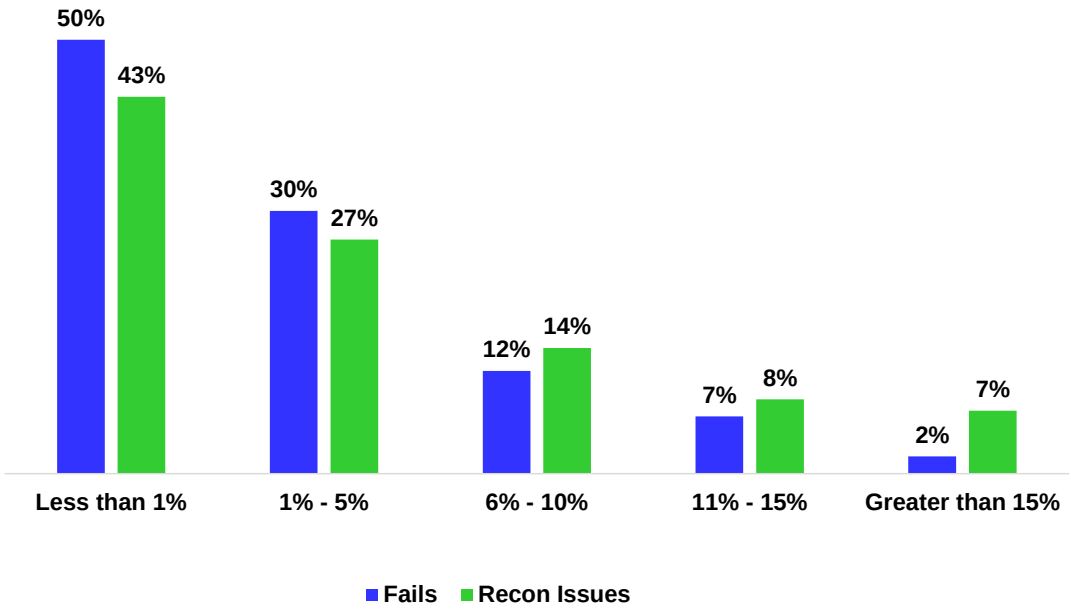
Exhibit 5
The Challenges/Impacts of the Current Security Identification Process by Firm Type



Source: TABB Group

Further granularity into the primary operational issues and costs identified failed trades and reconciliation exceptions as top of mind as shown in Exhibit 6. Half of firms attribute at least 1% of their overall total fails to incorrect security identification. The prognosis for reconciliation issues fared a bit worse. Almost 60% of respondents link at least 1% of their total exception issues, used here as a proxy for operational issues —other than settlement problems — to bad security data. A full 15% of respondents surveyed indicated that they experienced more than 11% of their breaks due to bad data.

Exhibit 6
Percentage of Failed Trades/ Recon Issues Caused by Incorrect or Incomplete Security Identifiers

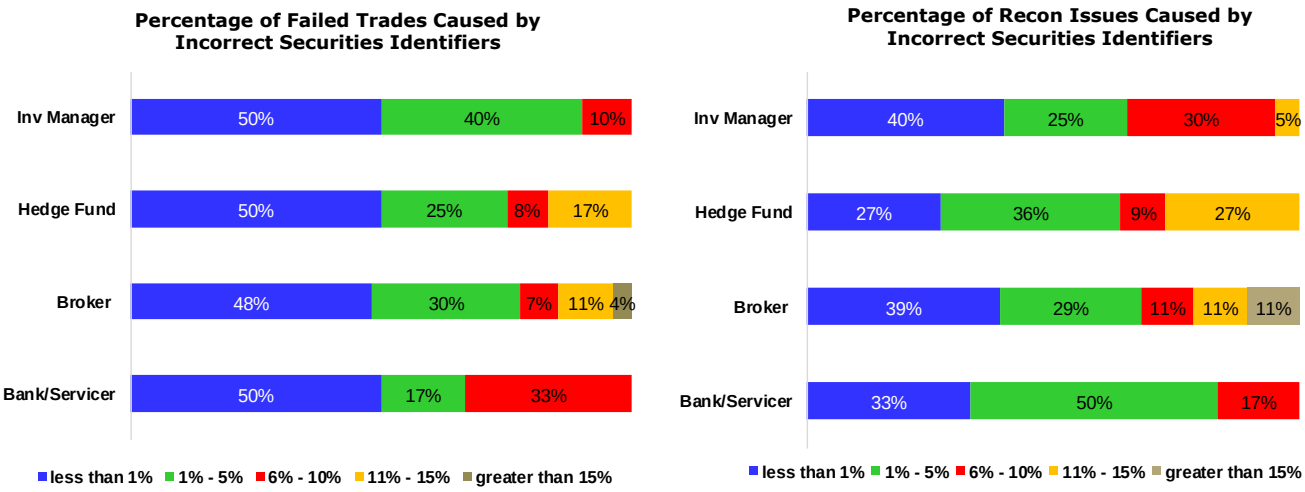


Source: TABB Group

Exhibit 7 gives more detail about who experienced the most fails attributable to incorrect security identification. Taking out vendors, CSDs, and regulators, we left the most typical counterparties to a trade. Although half of each category don't appear to be suffering from a large number of attributed fails, brokers stand out for having the most significant failed trades caused by security identification. Almost one-quarter of responding brokers experience more than 6% of fails for that reason. Hedge funds are a clear runner up in this category.

Exhibit 8 illustrates further that reconciliation issues are a clear result of incorrect or incomplete identifiers for this same subset of respondents. More than one-quarter of hedge funds say that 11% to 15% of their exception items overall are caused by bad data. Just under that amount of broker respondents said the same, but some brokers even reported that over 15% of their recon items were caused by security identification errors. Asset servicers stand out as two-thirds of respondents have issues.

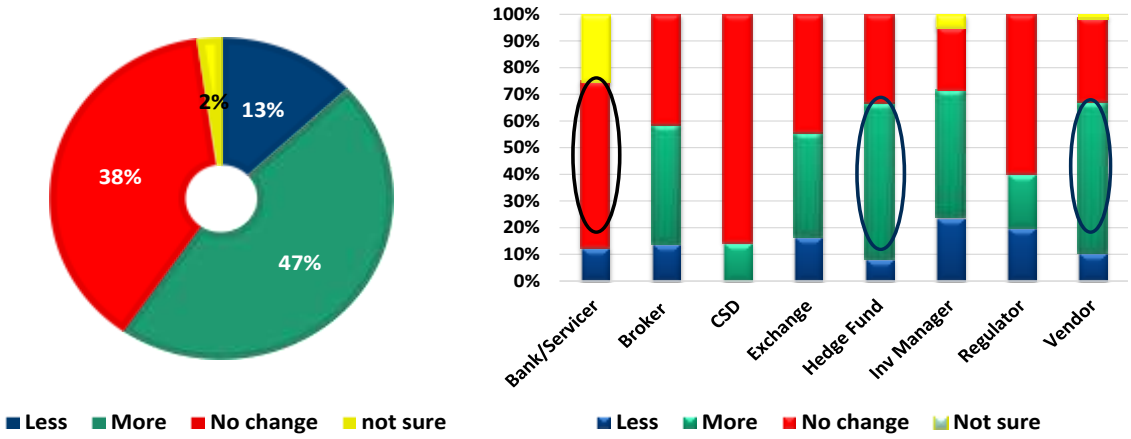
Exhibit 7 and 8
Percentage of Failed Trades/ Reconciliation Issues Caused by Incorrect or Incomplete Security Identifiers by Firm Type



Source: TABB Group

In addition to operational issues, spending on symbology licenses is a pain point for the financial services industry albeit it is considered a cost of doing business. When asked if they expected their spending to increase, decrease or stay the same over the next two years, almost half of respondents expect to spend more — the largest percentage response. Only 13% estimated that their costs on symbology would decrease. When viewed by segment, the story becomes even more interesting as shown in Exhibit 9.

Exhibit 9
Estimated Spending on Symbology Licenses over the Next Two Years



Source: TABB Group

Based on our survey, Tabb Group concluded the following about spending on symbology licenses:

- No banks expect to pay more in two years, and predict mainly no change to their costs due to long-term agreements already in place with their providers. For the most part, asset servicers most likely have already made the investment in multiple symbologies in order to meet the needs of their client base.

More, because "more regulatory oversight will necessitate more accurate and granular identifiers."

— North American broker

- The majority of brokers expect to pay more in two years for a number of reasons, but mainly due to regulatory demands for more transparency, granularity, and accuracy with MiFID2 and its Global Legal Entity Identifier requirement, and the Consolidated Audit Trail (CAT) reporting cited as a particular driver. Others expressed the fact that increasing asset classes combined with vendors increasing costs would increase spending.

"We don't use proprietary codes — we are ISIN based."

— Executive, Asia Pacific CSD

- CSDs not surprisingly predicted no change to their spending, mainly due to the homogenous nature of the securities they typically handle.

- The majority of buy-side firms that responded expect to be paying more in two years for licenses (48% for investment managers, 58% for hedge funds). One European hedge fund cited the increase in the number of data sources with each provider using their own symbology as the reason. Others located in North America blamed the vendors for "out of control" pricing increases.

We are expecting to spend less, since we are "moving to OpenFIGI and our own automated name/attribute matching systems based on machine learning."

— *APAC Investment Manager*

- Interestingly of the few investment managers and hedge funds that expected to spend less (24% and 8% respectively), most mentioned moving to an open financial instrument global identifier methodology as the reason. The remaining respondents (24% and 33%) felt that spending would not change over the next two years for various reasons, but mainly because they were asset class homogenous and their current identifier was sufficient for their needs.

"We only use one asset class and SEDOL is identifier."

— Portfolio Manager, North American Investment Manager

- Most vendors (57%) anticipate the costs of symbology licenses increasing over the next couple of years. The main reasons given included the number of asset classes expected to increase and the expanded requirements to support over-the-counter (OTC) derivatives. Others (32%) maintained that they expected no change in spending due to current licensing agreements being locked in. One European vendor that expected to spend less cited a global move to using ISIN code by regulators as a reason for decreasing costs.

"Open FIGI is used", so we expect no change in our spending.

— EMEA Vendor

Time for a New Approach

As mentioned above, some firms have begun to implement the Financial Instrument Global Identifier (FIGI) as a new approach for managing instruments, reducing reference data operations spend, and dealing with the complexity caused by having to maintain multiple identifiers in multiple places. The FIGI is an openly shared standard of the Object Management Group (OMG), and links its unique, semantically meaningless generated twelve character identifier to a hierarchical dataset that contextually specifies a financial instrument. Rather than replacing existing identification symbologies, the FIGI serves as a framework that enables linking existing identifiers into a standardized relationship structure based on the relevant metadata associated with different identification approaches. It can also act as a primary identifier across asset classes where no global identifier currently exists, as well as connect multiples that may exist. Access to a centrally available symbology that ties different symbologies together underneath it eliminates firms' need to perform their own mapping exercises, and enables greater data quality.

Yes, we use it to "pass through to clients (that) we are acting as third party processing agent for."

— Global Head, EMEA Exchange

The Financial Instrument Global Identifier, especially for a new standard, has had a numerically significant adoption rate of 14% over the past 4 years by financial firms as depicted in Exhibit 10, with a notable portion of the regulators surveyed having adopted that standard.

Almost one-quarter of investment managers we surveyed have already opted to use the FIGI in their current operations, with hedge funds right behind them. The reasons cited for adoption by the buy side were to accurately capture change events, to assist with cross referencing and mapping, and to comply with regulators. A notable lack of adoption resides in the bank/asset servicer segment of our respondents, as none that we surveyed have implemented the FIGI. As buy-side institutions continue to embrace the standard, we expect that to change quickly. It should also be noted that a peruse of press releases through 2014-2016 regarding FIGI revealed that State Street, Deutsche Bank and US Bank have adopted the financial instrument global identifier in various aspects of their operations.

We are using it "increasingly as the key field, and to pass data to external contributors - and be free of license worries."

— Executive, UK Hedge Fund

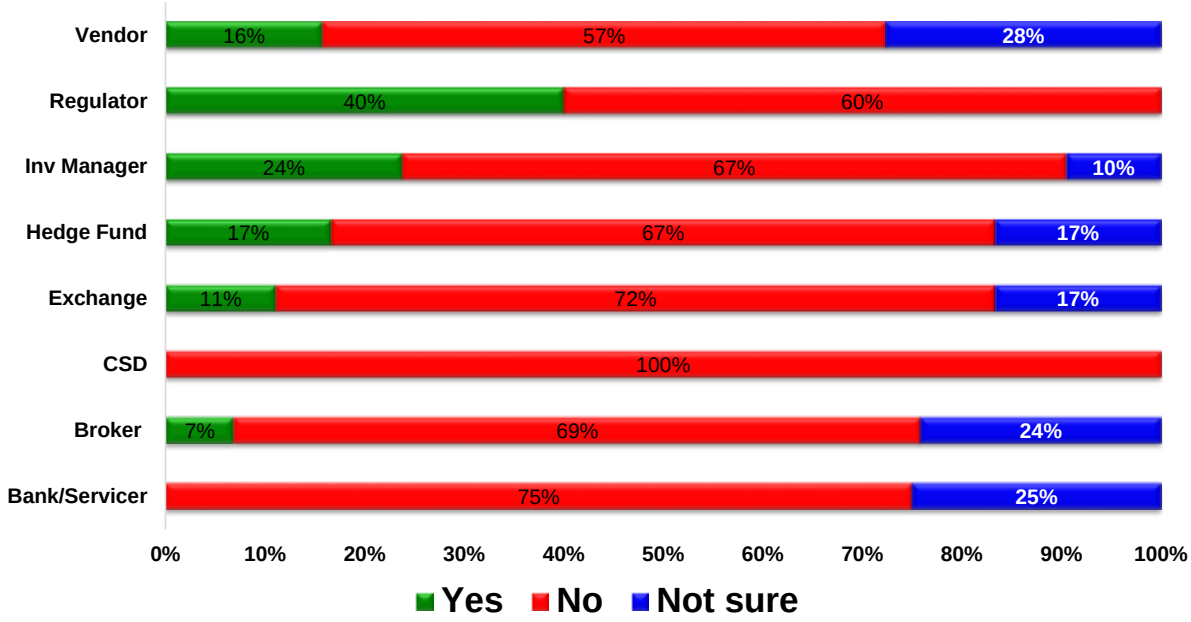
One large global capital markets firm that has already adopted the financial instrument global identifier as its primary key said in an interview that it did so in order to stay apace of the sheer volume of securities in the marketplace, and to reduce operational risk resulting from changing identifiers caused by corporate actions — particularly on options. The other main reason for adoption across all segments of respondents was that it is being used for mapping/cross referencing purposes. A major financial data and software vendor that has adopted it said that its clients expected them to make it available. Other vendors noted that they are currently analyzing the FIGI as their clients are contemplating using it.

"We are analyzing FIGI and hope that we can use it going forward — big proponents of the initiative."

— Executive, North American Options Data Vendor

Others felt that it was not necessarily relevant to the particular singular product set that they represented.

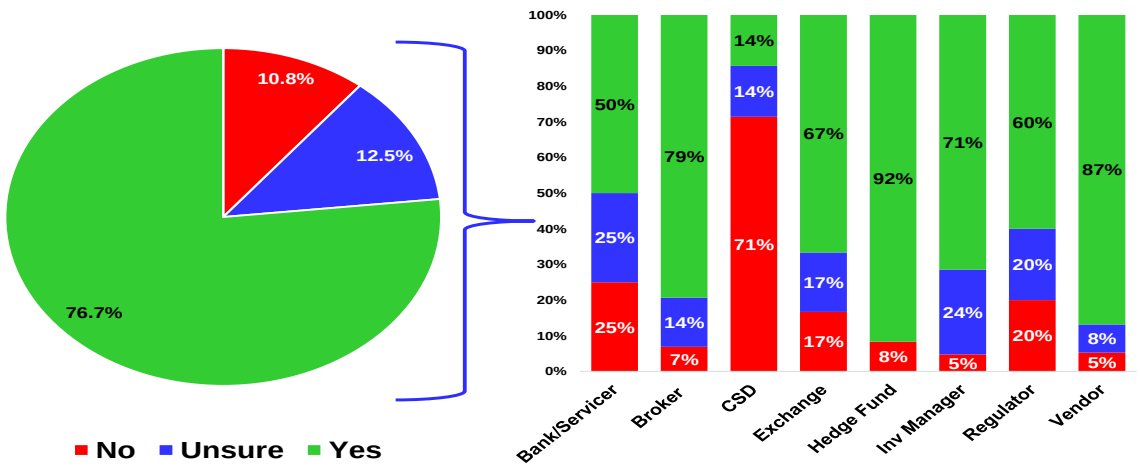
Exhibit 10
Adoption of Financial Instrument Global Identifier by Firm Type



Source: TABB Group

Regardless of the rate of adoption of 14% since its inception in 2011, the majority of the industry – particularly buy-side and sell-side capital markets firms — agrees that there is currently a need for such a global standard identification methodology as shown in Exhibit 11. The overwhelming exception to that sentiment resides with the CSD and exchange respondents who feel that the ISIN meets the needs of their particular market, and the needs of the industry — contrary to the opinions of the counterparties to securities transactions. It should be noted that many exchanges and CSDs are also National Numbering agencies responsible for issuing and distributing ISIN numbers.

Exhibits 11
Does the Financial Industry Need an Open Standardized Identifier?



Source: TABB Group

The strongest reason for adopting a unique, perpetually non-changing, standardized global identifier as identified by respondents is data quality improvement within the enterprise (see Exhibit 12). Internal reconciliation of trade and reference data across business lines and platforms can account for an estimated 70% of reconciliation activity within an organization, and can take hours per day to resolve. A corporate action that is processed within a portfolio accounting system, for example, must be reflected simultaneously — and equally accurately — on the order management system. An error of even a fractional share can cause a massive headache for the trading desk to mitigate. Correctly maintaining data lineage is critical for compliance functions as well, such as adherence to client guidelines and reporting to regulators.

Yes. We use the FIGI as a "contiguous map between industry codes."

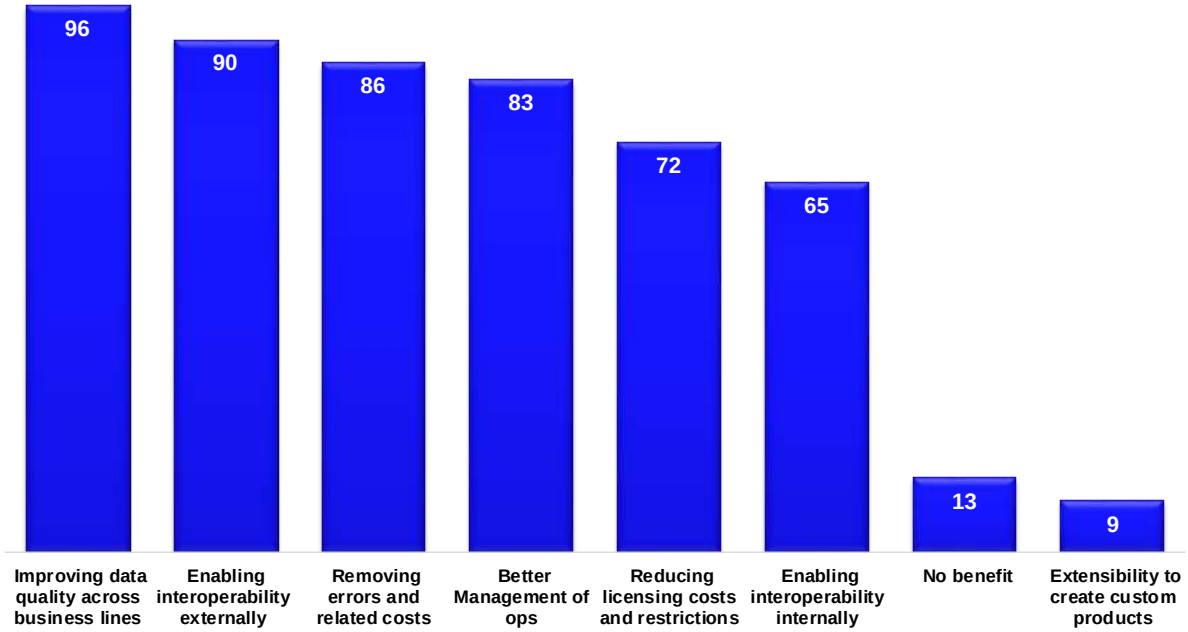
— Executive, UK FinTech Vendor

The next biggest driver for adopting an open source perpetual identifier as defined by our respondents was enabling external interoperability with trading counterparties and clients. Alleviating errors and better operational management rated highly overall. Of least importance was the ability of the identifier set to achieve extensibility in order to create custom products — although respondents that would be in that position did rate it as somewhat of a driver.

No. "We have our own globally unique identifiers."

— North American Broker

Exhibit 12
The Top Drivers for Adopting a Unique, Open Source, Non-changing, and Perpetual Identifier



Source: TABB Group

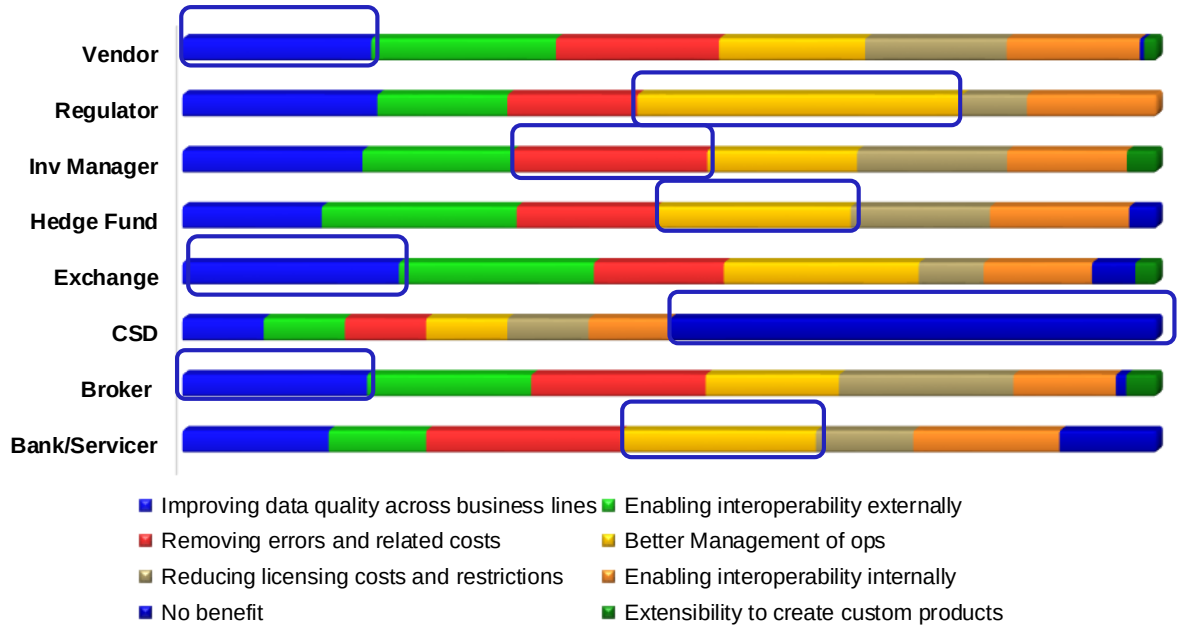
Exhibit 13 gives more clarity to the segmentation of the drivers for adoption. The top driver cited by the investment managers who responded, as well as their asset servicers, is the reduction of errors and related costs. Hedge funds also deviated from the majority in that they value external interoperability and better management of their operations as their key drivers for adoption. The improvement of data quality across business lines was the top driver for brokers, exchanges and vendors.

As illustrated in Exhibit 13, CSDs comprised the majority of the group feeling that a unique open source perpetual identifier is of no benefit to the industry. As discussed above, the mainly regional CSDs who responded also do not experience any challenges related to securities instrument identification. Use of ISIN code meets the majority of their current needs, most likely due to the homogeneity of the asset classes they serve.

"We believe in ISIN as our primary identifier."

— Head of Operations, EMEA Exchange

Exhibit 13
The Top Drivers for Adopting a Unique, Open Source, Non-changing, and Perpetual Identifier by Firm Type



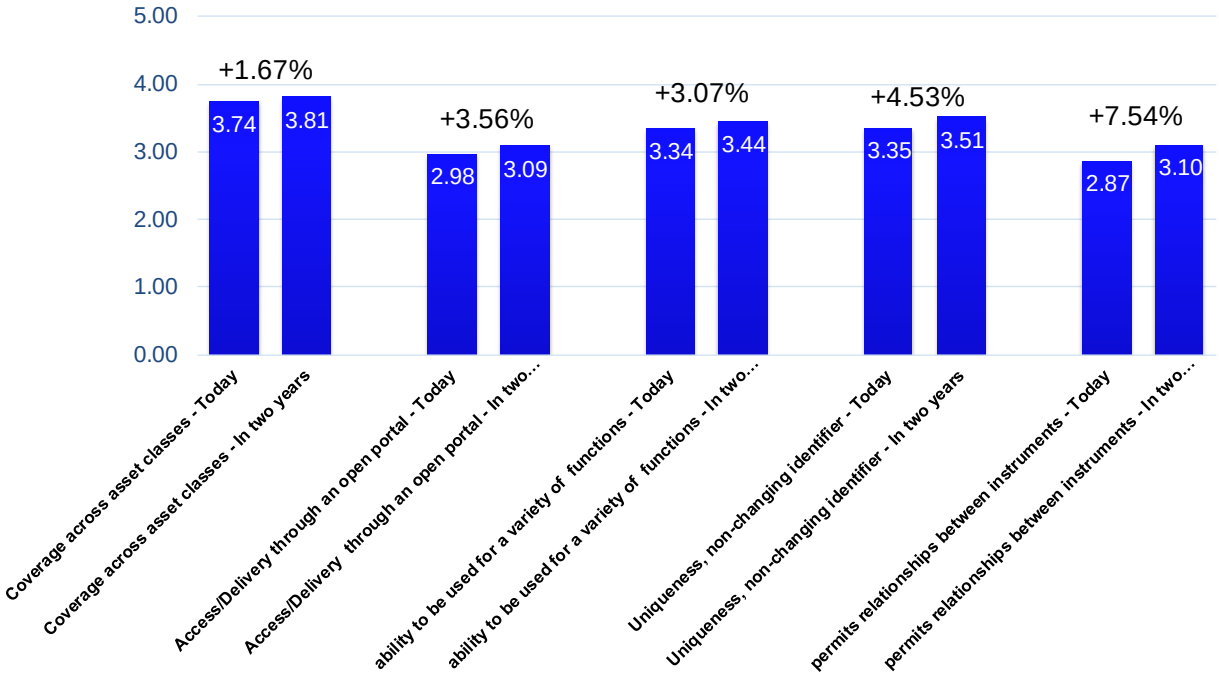
Source: TABB Group

When asked to rank the most important attributes of an industry global identifier today as well as two years from now, the highest rated feature for both timeframes was coverage across asset class as seen in Exhibit 14. The financial instrument global identifier symbology can be applied to any asset, while the majority of other codes only cover certain particular asset classes. Respondents felt that this criteria would only become more important in the future, given the rate of proliferation of investment products in the market. The characteristic of being unique and non-changing was rated as being next in importance after asset coverage.

"We'll need more global coverage."

— Technology Executive, North American Data Vendor

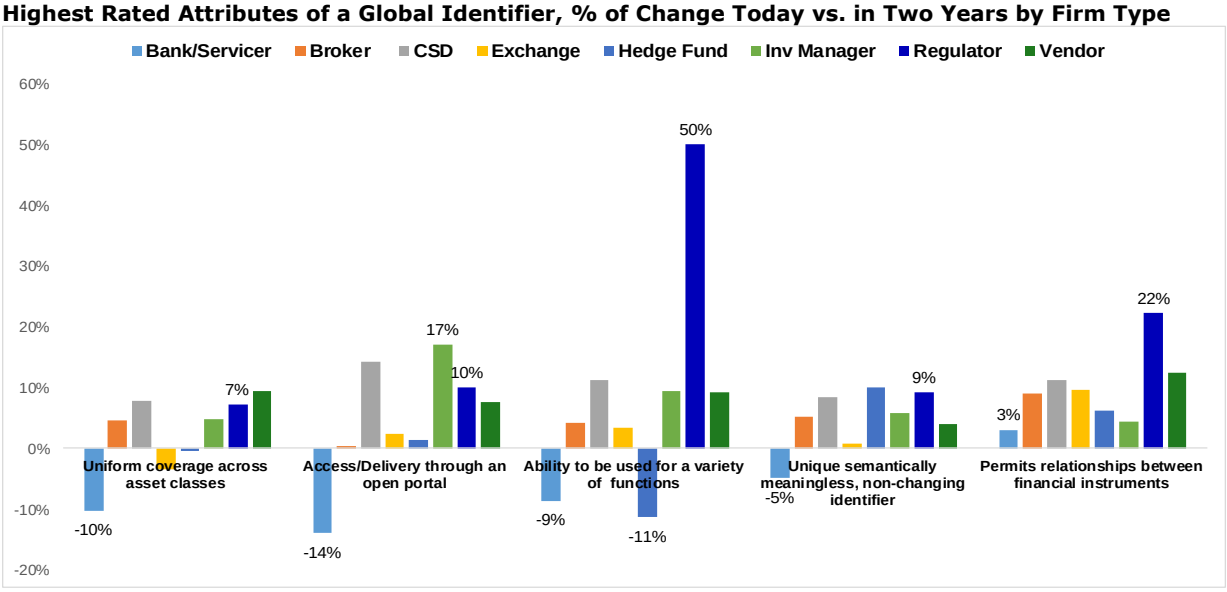
Exhibit 14
Highest Rated Attributes of an Industry Global Identifier Today vs. in Two Years



Source: TABB Group

Exhibit 15 breaks out the movement in attitudes toward the benefits of a global industry identifier by segment, and shows the percentage change from attitudes today vs. in two years. Notable movements were the decrease in importance of uniform coverage across asset classes by bank/asset servicer respondents; the change in importance of access via an open portal amongst bank/asset servicers at -14% and investment managers who ascribed greater importance to open access at +17%; the decline in importance of the ability to be used for various functions by hedge funds (-11%), but the increase in the same attribute by regulators (+50%). Regulators also responded that permitting relationships between financial instruments would increase in importance in two years, at 22%.

Exhibit 15
Highest Rated Attributes of a Global Identifier, % of Change Today vs. in Two Years by Firm Type



Source: TABB Group

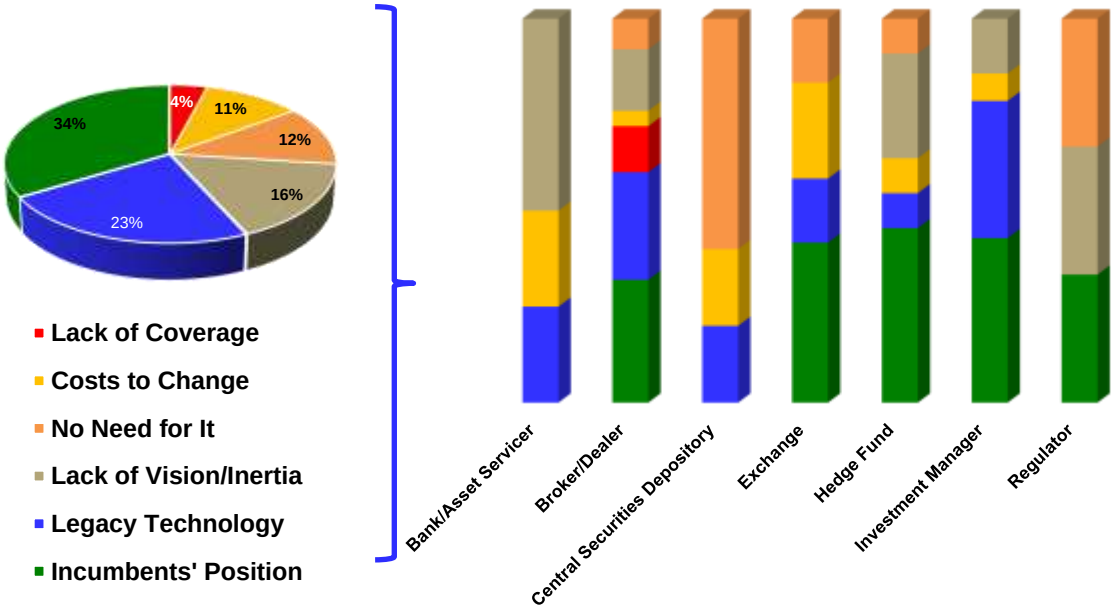
Hurdles for Increased Adoption

Market participants clearly have conflicting views about current securities identification practices as well as the potential of an open symbology. During the course of our research it became evident that while most are aware of such a framework, many remain unconvinced about the need for "yet another identifier" and are dubious that the costs of such a framework will remain free of charge in the future.

An open framework, based around a metadata approach allows for extensibility, flexibility, and takes on the onerous task of having to map exchange codes and tickers — proprietary identifiers such as SEDOL, CUSIP and ISIN, and firm-specific identifiers. It does not immediately eliminate the usefulness or necessitate the elimination of such identifiers. Nor does it necessarily reduce data symbology licensing costs in relation to fee-liable data. However, it does reduce the amount of time and largely manual resources spent within enterprises to manage identifier data across platforms and security master files by functioning as a high-level metadata management layer. It is here that the financial instrument global identifier ceases to be "yet another identifier."

Barriers to adoption as relayed to us by our research contacts are numerous and wide-ranging (see Exhibit 16), and the responses vary by type of firm responding. Overall, we found that responses fell into six major categories. The leading barrier cited by one quarter of respondents was that of the position of industry incumbents as demonstrated in comments such as "claims of ownership by players in the food chain," "vendor interests," and "protectionism by existing data vendors." Hedge funds and investment managers felt most strongly in this regard, but were not exclusive in feeling this way as evidenced by the words of an EMEA regulator, above.

Exhibit 16
The Biggest Barriers to the Industry's Adoption of an Open Standard



Source: TABB Group

The second largest barrier to the industry's adoption of an open standard fell under the category of legacy systems and technology not being equipped to handle the framework

natively. Investment managers and brokers followed by asset servicers rated this barrier as second most important. One investment manager mentioned that "systems are built around the current identifier scheme," and that the industry is difficult to change. This industry lack of vision and inertia was of notable ranking as well, particularly among asset servicers and regulators. Ironically, one broker/dealer cited the lack of regulatory support for such an initiative to be a barrier to its adoption.

Many felt that the costs to adopt the standard would not justify the potential benefits both in terms of perceived costs (it's offered free of charge), implementation time and lack of available resources. It should be noted that the largest segment that responded in this manner was exchanges, and not buy-side or sell-side respondents. Typically they have their own identifier scheme internally and so the incentive to change is minimal. Any benefit would be for their users indirectly by allowing them to align their views of the same instrument across different exchanges' different ID schemes.

Finally, there was a contingent who felt that there are no barriers because they do not see a need for the industry to adopt an open standard. These respondents represented primarily by EMEA single market CSDs and exchanges cited that the ISIN is an open standard; that it provides all of the benefits cited above; and that it is already an ISO standard for identifiers in ISO6166. The buy side and sell side were again underrepresented in this category as many experience operational issues due to the lack of asset class coverage by the ISIN or the fact that it does not specify place of listing, trade, or execution for settlement purposes.

It is evident that there are misconceptions about the financial instrument global identifier framework standard. Although many respondents acknowledged its benefits, it was clear that others see it as just another burdensome identifier rather than an open framework that facilitates the mapping and cross-referencing of proprietary and internal identifiers. It needs to be stressed that an open framework does not mean the elimination of legacy identifiers and can be adopted within an existing enterprise architecture with some modification. Any cost savings realized would mainly be the result of increased data quality, directly and indirectly impacting operational efficiencies achieved by the reduction in manual mapping and cross-referencing activity. However, some level of savings could possibly be fostered by the lessened requirement for redistribution licenses if all incoming identifier data were converted to a single symbology for outbound reporting. Additionally, if FIGI was adopted for OTC derivatives, there would be no additional costs to firms to pay the Derivatives Service Bureau, as another example, but cost savings is not the primary goal or driver.

Conclusion

These are exciting times within the financial services and technology industry. There are certainly challenges, but the opportunities for innovation and advancement are stronger than ever. However, the industry has really never made complete progress on reaching consensus on how to uniquely identify financial instruments. Disparate methodologies and symbologies for instrument identification stand in the way of innovation, operational efficiency, data quality across an enterprise and the industry.

Standardization within a framework must be recognized as a crucial enabler of the next generation of an integrated, interoperable financial services architecture. The lack of an open source framework for identification impedes innovation such as an external distributed ledger as a means of conveying and recording transactional information across counterparties. The lack of an open source framework for identification impedes innovation such as an external distributed ledger as a means of conveying and recording transactional information across counterparties. When a trade is matched and confirmed, it needs to settle. It is the data that is associated with the settlement landscape that is at the core of blockchain's immediate potential cost reduction opportunities within capital markets. The data of course come from many different and in some cases competing sources. For this technology to work, parties must agree irrevocably on the underlying terms of the trade including the associated reference data. There can be no blockchain consensus if there is not a common understanding of details of the instruments traded, the data associated with that instrument, and those trading them (see V14-055 Demystifying Blockchain). This notion relates to smart contracts as well as they will most likely comprise the underlying terms of the trade on the chain. Getting to standardization however is hard work and will not happen overnight. Therefore, a data framework to enable a standard to emerge can be a critical component in the success of major initiatives such as blockchain. A perpetual non-changing digital identifier that uniquely characterizes the traded instrument, is openly accessible, covers all tradeable assets and, is managed by a trusted administrator ticks the right boxes.

There is no doubt that a free, open standard framework can provide other more immediate value to financial services firms and vendors. Rather than replacing exchange or proprietary identifiers, such a framework enables more granularity, or uniqueness, to reference data by clearly defining its linkage to those existing identifiers, and between them. The financial instrument global identifier, rather than adding another layer, facilitates the cross referencing of multiple identifiers to one another, which reduces the burden on financial services firms to do the mapping themselves as a cost of doing business. Using the symbology as their primary key allows firms to track data lineage. The identifier does not change as a result of a corporate action, something that typically occurs with other types of identifiers in use today and can cause trading confusion. It can be used to uniquely identify any tradeable instrument in any asset class, including those that do not currently have a recognized market identifier as in the OTC markets. This is a feature that fosters communication of trade, holdings, and pricing data across an enterprise, but also that of interoperability with service providers, vendors, and trading counterparties. It addresses the shortcoming of existing identifiers that do not specify trading or settlement venue as a data element for example. For those that cited in accurate or inadequate security identification as a cause of trade settlement failures and reconciliation issues, this could provide the necessary granularity. Implementation can take place within an enterprise's existing technology infrastructure. One large global bank

that was interviewed subsequent to our research integrated the FIGI as its primary identifier with some straightforward mapping, although the institution did have to make some changes to their processes.

Firms can make a choice to future proof to anticipate coming changes **or** they can continue to maintain the status quo of manually managing individual standards. They can choose to respond dynamically to innovation. They can choose to respond to operational risk that occurs from disrupted trade settlement.

About

TABB Group

TABB Group is the international research and consulting firm focused exclusively on capital markets, founded on the interview-based research methodology developed by Larry Tabb. Since 2003, TABB Group has been helping business leaders gain a truer understanding of financial markets issues to develop actionable roadmaps and approaches to future growth. By accurately assessing their customer base, competition, and key market opportunities, TABB Group works with senior industry leaders to make critical decisions about their business. For more information, visit www.tabbgroup.com.

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TABB Group's FinTech research practice is specifically designed to help financial institutions understand the latest spending trends, strategies, and solutions that are critical to achieving best-practices in financial services technology, data, analytics, and technical infrastructure. This service also helps technology and data solution sales and marketing organizations understand specific requirements and use cases within financial services and capital markets firms.

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