OLIVER WYMAN

THE SWISS COMMODITY TRADING SECTOR: COMPETITIVENESS AND INTEGRITY

A REPORT FOR THE INTERDEPARTMENTAL PLATFORM ON COMMODITIES

SWISS CONFEDERATION

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MARSH & McLENNAN COMPANIES

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Methodology and background

This report has been commissioned by the Interdepartmental Platform on Commodities of the Swiss government to assess the current status of Switzerland and other globally relevant commodity-trading hubs and how to position Switzerland's commodity-trading hub going forward. The peer group was chosen amongst global hubs that are active across energy, metals, and soft commodities.

The Interdepartmental Platform predefined the dimensions of the assessment, based on three key components:

- **Economic factors:** proximity to physical asset base, access to trading peer group, and access to financial and capital markets
- **Competitiveness:** stable and clear environment (political, legal, fiscal and macro- and microeconomics), efficient setup, and support structure (attractiveness for talent and world-class infrastructure)
- **Integrity and environment**: conduct and regulations to ensure business integrity, and public initiatives related to combatting corruption, human rights, and environmental compliance

It is important to note that in assessing commodity-trading hubs, there is considerable subjectivity, with no universally accepted benchmarking process. For this assessment, the predefined dimensions were broken down into smaller sub-dimensions, each consisting of a set of metrics that could be measured through publicly available data. Some of the measures reflect generally accepted indicators of importance, such as trading volumes. Other measures were identified in interviews with a wide range of stakeholders, including commodity traders, non-governmental organizations (NGOs), and policymakers. Wherever possible, the metrics were collected from official sources.

To ensure that results can be reproduced, Oliver Wyman has not used its own judgment to assess the methodology and quality of the underlying measurements and data and has not made any adjustments. Given the subjectivity regarding the metrics' importance, which may vary depending on business model or government strategy, the metrics within each dimension and sub-dimension were equally weighted. Additionally, no attempt was made to derive a single ranking across all dimensions, as any potential trade-offs around the relative importance of each dimension would be subject to the economic and/or societal goals of different stakeholders.

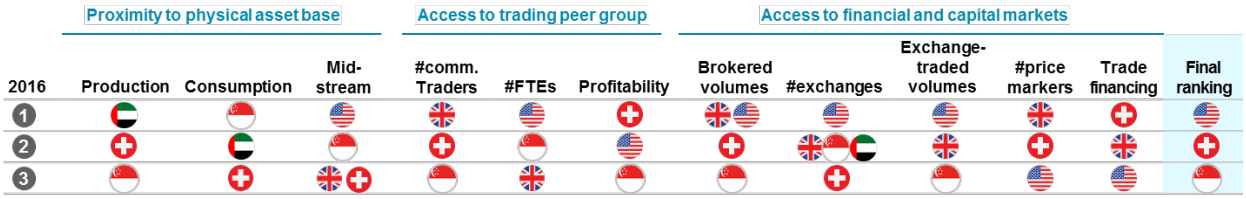
The peer group was chosen from an extensive list of global hubs identified as active in commodity trading, independent of geographic location or commodity classes traded. In discussions with FDFA, four peer hubs were selected as critical peers for Switzerland: the UK, the US, Singapore, and Dubai. The hubs were then assessed along the three predefined dimensions. Additionally, while all five hubs were compared against each other along each of the metrics, the benchmarking analysis focuses in a deep dive on Switzerland and a summary of the distinctive features of its peers. This is because the objective of the report is to understand the key strengths of other hubs from Switzerland's perspective and their implications on the Swiss hub's positioning going forward.

Current positioning and recent developments

Just as commodity traders are evolving in terms of their business models and roles in the value chain, international commodity hubs are also changing in terms of economic factors and competitiveness and are placing a growing emphasis on integrity and environmental sustainability. As of 2016, Switzerland performs strongly across the three assessment dimensions considered.

On economic factors, Switzerland is ranked second (see Figure 1: Current positioning of trading hubs on key economic factors), with a strong trading peer group presence and good access to financial and capital markets. The US performs most strongly, with an extensive midstream infrastructure network, large talent base, and high brokered and exchange-traded volumes. Singapore ranks third, benefiting from the recent rise in commodity trading volumes in Asia.

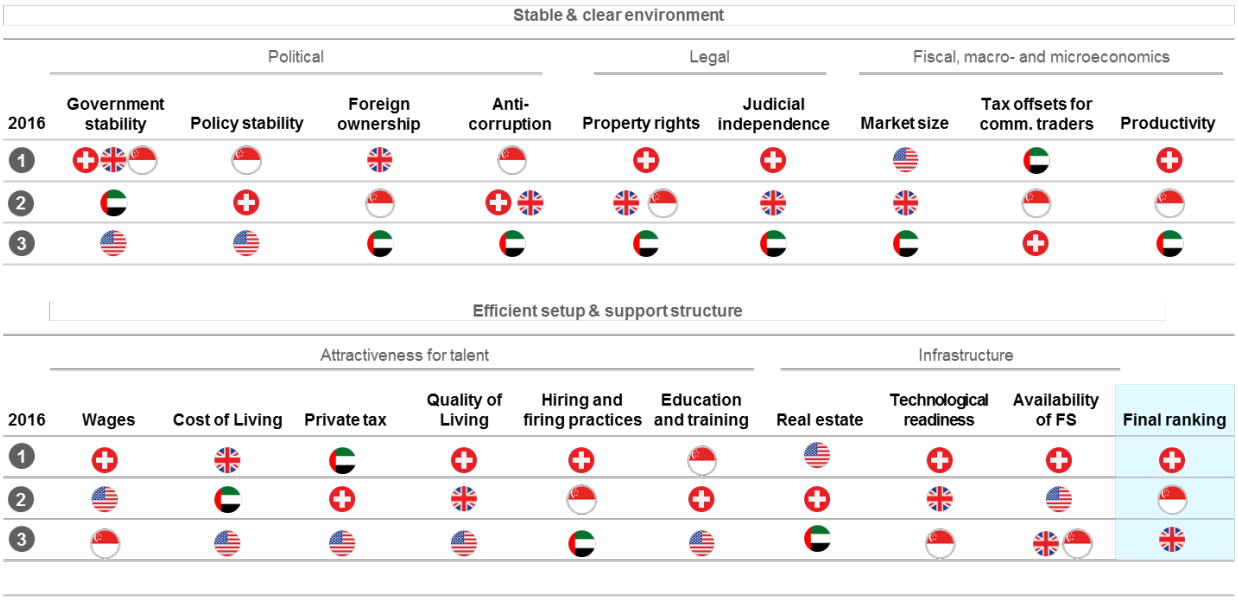
Figure 1: Current positioning of trading hubs on key economic factors



Note: Additional detail on benchmarking methodology and results follows
Sources: IMF, BP Statistical Review, World Bank, Central Intelligence Agency (CIA), UNCTAD, Erdöl-Vereinigung, IEA, Reuters, Capital IQ, IE Singapore, Dubai Commercial Directory, Swiss National Bank Balance of Payments, Office for National Statistics Balance of Payments, US Bureau of Economic Analysis, Department of Statistics Singapore, UAE Central Bank, Bureau of Transportation Statistics, STSA, Energy Risk, IJGlobal, Platts, Oliver Wyman proprietary data and analysis

In terms of competitiveness, Switzerland ranks first, ahead of Singapore and the UK. (See Figure 2: Current positioning of trading hubs on competitiveness.) Switzerland benefits from a stable political and legal environment and is regarded as an attractive place to live and work. Singapore also scores well on political stability, and benefits from a strong education system. The UK is perceived as attractive for foreign ownership and has a lower cost of living than the other locations in the peer group.

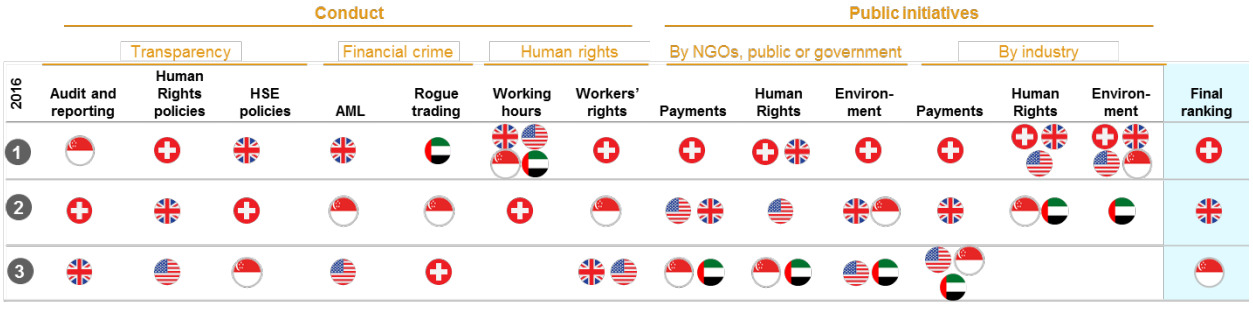
Figure 2: Current positioning of trading hubs on competitiveness



Note: Additional detail on benchmarking methodology and results follows
Sources: IMF, WEF Competitiveness Report, PWC Worldwide Tax Summaries, Deloitte Corporate Tax Rates 2017, Reuters, National legislations, Mercer Cost of Living underlying data, KPMG Individual Tax Rates Table, Cushman & Wakefield, Oliver Wyman proprietary data and analysis

Switzerland also leads in the category of integrity and environment, ahead of the UK and Singapore. (See Figure 3: Current positioning of trading hubs on integrity and environment.) It has a large number of public initiatives (both NGO- and industry-led) on payments, human rights, and the environment, and demonstrates good financial transparency. The UK has stringent corporate governance requirements (in such areas as health, safety, and the environment) and numerous public initiatives. Singapore is strong on financial crime and benefits from high audit and reporting standards.

Figure 3: Current positioning of trading hubs on integrity and environment

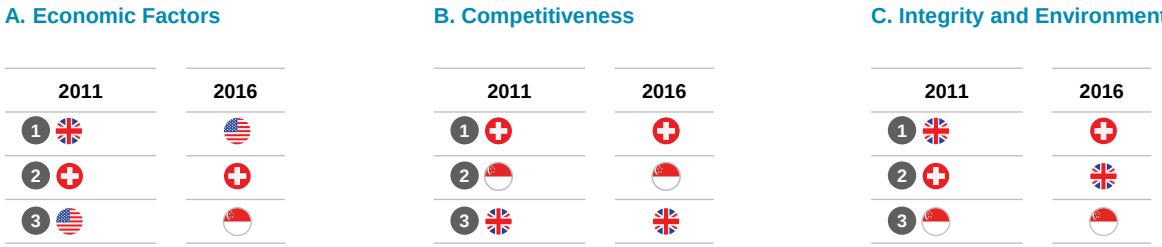


Note: Additional detail on benchmarking methodology and results follows
Sources: IMF, WEF Competitiveness Report, UN Agency with underlying data from Freedomhouse, International Labour Organization, Basel Institute on Governance, Transparency International, Global Terrorism Index, World Bank, International Trade Union Confederation, Global Workers Rights Index, OECD National manpower statistics, EITI, NGOs and companies websites, Oliver Wyman proprietary data and analysis

In recent years, the overall positioning of commodity-trading hubs has remained relatively stable with regards to competitiveness and integrity and environment. (See Figure 4: Average

placement across three key dimensions for 2011 vs. 2016 based on evaluated data.) More substantial changes have taken place under the economic factors dimension.

Figure 4: Average placement across three key dimensions for 2011 vs. 2016 (based on evaluated data)



While incumbent hubs (Switzerland, the UK, and the US) continue to play significant roles, the newer locations (Singapore and Dubai) are rapidly catching up, driven by a range of factors, including macroeconomic ones. It is an open question as to which individual factors could help the established hubs retain their positions of strength:

- **Switzerland** historically has been viewed as a leading commodity-trading hub, due to its central time-zone coverage, high-quality workforce and infrastructure, quality of living, and access to financial and capital markets, as well as its attractive taxation structure. While it may not be perceived as the leader in every dimension, stakeholders note its balanced profile, with several clear strengths and very few weaknesses. However, Switzerland may have reached a peak, according to the interviews conducted, and there is uncertainty as to which factors may attract additional trading companies or enable existing players to expand. The private sector has acknowledged the increasing workload caused by the current regulatory environment, emerging popular initiatives, and NGO activism. In comparing Switzerland to other hubs, the commodity trading industry characterized Switzerland's competitive advantage as being in decline. Relative costs were cited as particularly important in a market environment of shrinking margins, where cost pressures on commodity traders are increasing and outsourcing activities are continuing unabated. To maintain its existing commodity-trading community, Switzerland will need to carefully manage its positioning and coordinate its efforts across multiple dimensions.
- **The UK** remains a competitive commodity-trading hub, and industry participants note the concentrated presence in the UK of asset-backed traders[1] (such as oil majors and state-owned companies), the presence of investors (such as hedge funds), and a leading market infrastructure. However, in recent years, the UK's relative positioning on the survey metrics has fallen, mainly due to the rapid advance of other hubs. For example, the UK's coverage of physical asset production is more dependent on oil, and therefore has a greater sensitivity to fluctuations in oil prices. Other hubs have a more balanced portfolio or benefit from exposure to growing regions. The UK has also remained relatively stable in terms of its proximity to midstream facilities, while other hubs, such as Singapore, have increased their oil storage and bulk port handling volumes. The UK has also seen a significant decrease in commodity trading profitability, from US$12.2 billion in 2011 to US$4.9 billion in 2016, potentially due to the asset-backed business model that most UK-based commodity traders

[1] Asset-backed traders – trading companies that are part of integrated physical asset producers

employ (further details provided in the section on Economic Factors). Interviewees believed that similarly to Switzerland, the UK benefits overall from its geographical positioning and high-quality talent, but that it is now facing challenges due to its political situation and uncertainties around Brexit. Based on our interviews, Brexit's consequences could be twofold for commodities trading: in the short term, the uncertainties may result in industry participants shifting headcount from the UK and new organizations becoming reluctant to set up operations in a politically unstable environment. In the long term, the effects remain unclear and depend on single market access and relative regulations. In the event that the UK ends up outside the single market, there have been occasional suggestions from some policymakers of moving towards a more deregulated environment, which could potentially increase the UK's competitiveness. The UK currently has a relatively high number of public initiatives on integrity and transparency, the most prominent example being a multi-stakeholder platform of the Extractive Industries Transparency Initiative (EITI).

- **The US** remains well positioned, particularly with respect to economic factors. A key factor mentioned from a trading perspective is the advantage of covering a big economy and trade locally, with significant domestic commodity production and demand, resulting in a strong regional commodity-trading hub. Additional advantages include the presence of major commodity trading exchanges, hedge fund traders, as well as major banks active in commodity trading and financing. In terms of competitiveness, the US is well positioned, given its macroeconomic environment, attractiveness for talent, and efficient infrastructure.
- **Singapore** has seen significant growth over the past years, driven by its proximity to physical assets, taxation offsets for commodity traders (via the Global Trader Program), and internationally recognized legal and regulatory frameworks that offer market participants significant protections and flexibility. It also has strict financial crime regulations, especially with respect to anti-money laundering. Some interviewees from the private sector pointed out that the Singaporean authorities have managed to ensure a pro-business environment and a collaborative approach towards the private sector. This has fostered the perception that the commodity trading industry is welcome in Singapore and has the support of authorities.
- **Dubai** is an emerging and growing hub, driven by its proximity to the physical asset base and coverage of Europe, Middle East, Africa, and West Asian regions. Some interviewees believe that the current level of Dubai's development is a function of the relatively recent establishment of a commodity trading sector (compared to its peer group), resulting in a smaller trader population. Additionally, regulatory hurdles related to netting activities exist, leading to potential difficulties to displace established liquidity pools. Some interview participants cited Dubai as one of the most promising alternatives to the established hubs, given its central time zone, skilled expat workforce, and efficient infrastructure.

Based on the positioning of the other hubs and developments in recent years, there is evidence that macroeconomic and competitive factors internationally, as well as the rise of a political movement in Switzerland that is perceived as being critical of business, could result in increased pressure on positioning Switzerland as a hub. Given its broad strengths and the perceived absence of significant gaps, Switzerland may require an active management of the 'trialogue' between the private sector, NGOs, and other stakeholders, and coordinated, continuous improvement across several dimensions to maintain its competitiveness, rather than an improvement in a single dimension alone.

Existing and emerging trends

Nine existing and emerging trends have been identified through discussions with industry stakeholders (including commodity traders, governmental representatives, financial institutions, NGOs, and academics). These trends may shape the competitiveness of commodity-trading hubs across the three survey dimensions:

Economic Factors

1. **A continued shift of volumes towards Asia**, especially in precious and base metals and soft commodities, may raise Singapore's ranking. Dubai may also benefit from this development, if it can expand its coverage of physical assets eastward to benefit from the coverage of its time zone. At the same time, commodity traders based in Switzerland, the UK, and the US may require a more extensive presence in Asia to serve the growing local client base. This could happen relatively quickly: asset-backed traders often noted in interviews the relative ease with which a trading presence can be established, given access to global infrastructure. Some of the commodity traders mentioned that other emerging markets, including Africa and Central and South America, also offer a growth opportunity, which may differ by commodity asset class.
2. **The development of new commodity classes** may benefit the hubs differently: as an example, industry participants pointed to the positive impact of lithium and cobalt on London, Singapore, and Switzerland.
3. **European commodity traders are expanding internationally,** tapping into value pools outside their legacy footprints and opening up offices in Singapore, Dubai, and the US. In our interviews, the UK was mentioned as benefitting from being the domicile of many asset-backed commodity traders, which locate their trading businesses close to the group headquarters. Switzerland is perceived to be more reliant on independent[2] traders, which have greater flexibility when it comes to location.

Competitiveness

4. **Cost efficiencies are key to competitiveness**, as structural oversupply and lack of volatility in many commodity asset classes drive gross margins downwards. As a result, commodity traders are increasingly looking to greater cost efficiency. Switzerland has been mentioned as being one of the most expensive locations in terms of talent and cost of living. And, given the trend of offshoring of middle- and back-office functions, the challenges facing Switzerland may be much greater than other hubs because of the higher concentration of independent trading firms, which are not linked to the location of their corporate parent.
5. **A redistribution of commercial, middle-office, and back-office roles** across the hubs is likely to occur, driven in part by cost efficiencies. The US and Singapore have been mentioned as growing in terms of locally trained commercial roles, while the UK may be benefitting from commercial roles leaving Switzerland due to the associated compensation cost. Additionally, Switzerland's lifestyle, which is considered less cosmopolitan than the other hubs and is costlier, may make it less attractive to a younger generation of commodity traders. In an age of remote workplaces and digital front offices, Switzerland may continue to lose its commodity trader community to more urban, multicultural environments, such as

[2] Independent traders – merchant trading companies with primary objective of trading activities, without necessarily owning sources of production

London or Singapore, especially given the concentration of independent commodity trading firms.

6. **Digitization could impact the relative competitive advantage of outsourcing**, according to some market participants. Digitization may result in reduced headcount, a lower cost base in absolute terms, and reduced sensitivity to cost differentials between locations. This development could lead to a more level playing field, as further cost reductions take place across all trading hubs. Moreover, emerging technologies, such as robotization and distributed ledgers (blockchain), are expected to shrink geographical differences. Market players expect digitization to result in the ability to cover global time zones without necessarily having a global geographic footprint or adjusted working hours and shifts.

Integrity and Environment

7. **Convergence of international corporate tax legislation may result from efforts to pursue common policy objectives.** Some of our interviewees mentioned this could lead to Switzerland losing its remaining competitive advantage in the tax dimension. The observed development was twofold: on the one hand, some hubs have decreased their corporate income tax rates in recent years as part of a continuous effort to maintain their competitiveness, as in the UK and ongoing discussions in the US (as of November 2017). In addition, many of the hubs are collaboratively implementing common actions to align tax regulations, audit, and control, thereby decreasing tax regimes as a source of competitive advantage.
8. **The impact of financial regulations** on commodity traders can be separated into three categories. Firstly, certain types of financial-services companies, such as banks and insurers, are required to hold substantial amounts of capital related to their risk-taking activities; in the past, this has led to banks reducing their commodity-trading activities. Secondly, new regulations related to trading of commodity derivatives were introduced (and further amendments are expected), driven by the European Union's Markets in Financial Instruments Directive (MiFID I) legislation; this may result in regional differences related to trading some instruments, such as derivatives on European oil products, despite the ability to trade these globally. Thirdly, commodity-trading compliance requirements, NGO pressure levels, and number of public initiatives may differ among the hubs, resulting in higher short-term regulatory costs in Switzerland and the UK, and thus a competitive disadvantage for traders located there.
9. **Public initiatives and lobbying efforts for greater transparency vary among hubs**, with Switzerland at the higher end of the activism spectrum. Both large asset-backed traders and independent commodity traders acknowledged the positive effects and importance of integrity and environmental protection, noting that ensuring the quality and traceability of traded products could mitigate potential reputational risks. However, a large majority of the interviewees highlighted the impact of rising transparency requirements on cost structure, reputational risk exposure, and overall hub competitiveness. Additionally, some of the governmental stakeholders perceive that the concentration of the commodity trading companies located in a hub and a potentially limited transparency into their operations may have reputational impact for the country in question. A recurring theme was the need for greater alignment between hubs to maintain a 'level playing field,' which is evidently challenging to deliver. It is important to note that the increase in the number of public initiatives over the past years is seen as a journey of continuous improvement efforts, and some stakeholders still see significant potential to continue this journey. Interviewees also

suggested that the government might be best positioned to manage the tensions between the private sector and NGOs in a proactive manner.

Elements of a future commodity-trading hub

Furthermore, discussions with industry participants suggest a number of priorities and expectations for a future commodity-trading hub:

1. **Transparency and stability:** from a business perspective, the transparency, political stability, and legal framework of the hub all play an increasingly important role in location choice, and therefore should be an area of focus for the hubs. The interviews highlighted that hubs would greatly benefit from a situation in which both private and public sectors would both 'know and play by the rules of the game.'
2. **Leading multi-stakeholder discussions**: it is important for a hub to proactively lead the discussion between different stakeholders, ranging from the private sector, to NGOs and academia. The respective government should not simply behave as an 'observer,' but instead should seek to drive the discussion forward. Based on interviews, there is a convergence between both NGOs and commodity traders on their expectations of the government's role in multi-stakeholder discussions. Some participants mentioned the necessity for the government to organize one-on-one discussions between a single firm and the NGOs, while government representatives act as 'moderators' – this would result in a more effective 'trialogue' and tangible action plans.
3. **Regular communication on the role of the commodity trading industry:** different groups of stakeholders highlighted the need for transparency on the role of the commodity trading industry in terms of the hub's economy. Given the access that government authorities have to data on the industry's contribution to employment, tax revenues, and share of GDP, they are in the best position to drive transparency.
4. **Global efforts and alignment of regulations:** significant variations in regulations and standards among the hubs may influence location choice. Therefore, in the interests of the various stakeholders, it is important for authorities to collaborate to ensure global standards, with the objective of minimizing variations in regulations. The overall global commodity trading industry could benefit from this development, as pointed out by some interviewees; this would improve the safety and security of the workforce, the quality of the products and environment, and maintain a level playing field in terms of control and associated costs.
5. **Cost efficiency and business friendliness:** given shrinking margins and resulting cost pressures, factors such as real estate prices, corporate and personal taxation, and the cost of living become increasingly important, especially when establishing a new organization. Hubs with relatively high cost structures may partially offset this effect with increased proximity and accessibility of the authorities.
6. **Development and implementation of digitization:** various participants highlighted the importance of investments in digitization and the disruptive potential of new emerging technologies. Hubs may benefit by encouraging the establishment and development of an emerging digital ecosystem, including talent, professional services, and a legal framework to attract early adopters of the technology.

1. Context of the report

1.1. Background and objectives of the report

On December 2, 2016, the Federal Council approved the third status report on the implementation of the recommendations of the Background Report on Commodities. Since then, there has been additional progress in promoting location, transparency, the responsibilities of companies and states, development policy, double-taxation agreements, and transfer pricing, as well as reputational risk. Moreover, the dialogue on commodities with actors outside the Federal Administration and within the interdepartmental platform has advanced.

As stated in the 2016 status report, the implementation of many of the recommendations has moved forward, and in some cases the recommendations have been fulfilled, such as Recommendation 9 on active promotion of international initiatives on transparency of product flows (including the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas). Some proposals are of a more permanent nature, such as Recommendation 1 on Switzerland's attractiveness as a business location, and therefore it is difficult to measure the extent to which they have been realized. Some issues require more specific development and will build on the progress achieved, such as the reform of corporate taxation. In this regard, the Federal Council has instructed the Interdepartmental Platform to conduct an evaluation of the Swiss commodities sector by November 2018, including the need for state action with regard to competitiveness, integrity, the environment, and other aspects (Federal Council, 2016).

In this context, the Interdepartmental Platform on Commodities under leadership of the Federal Department of Foreign Affairs (FDFA) engaged Oliver Wyman to conduct an external study, 'The Swiss Commodity Trading Sector: Competitiveness and Integrity'.

1.2. Assessment dimensions

The objective of the study is to assess how the Swiss commodity-trading hub and other global hubs have developed of late, and Switzerland's positioning in the current environment, with a focus on three dimensions: economic factors, competitiveness, and integrity and the environment.

It is important to note that there is considerable subjectivity in any approach taken in assessing commodity-trading hubs, with no universally accepted benchmarking process. For the purposes of this assessment, the predefined dimensions were broken down into smaller sub-dimensions, or facets, each consisting of a set of metrics that could be measured on the basis of publicly available data. Some of the measures reflect generally accepted indicators of importance, such as trading volumes. Other measures were identified in interviews with a wide range of stakeholders, including commodity traders, non-governmental organizations (NGOs), and policymakers. Wherever possible, the metrics were collected from official sources.

Oliver Wyman has not used its own judgment to decide on method and quality of the underlying measurements and data or made any adjustments, so as to ensure that results can be reproduced. Given the subjectivity around the importance of the metrics, which can vary depending on business model or government strategy, the metrics within each different dimension and sub-dimension respectively were equally weighted. Additionally, no attempt was made to derive a single ranking across all the dimensions, as any potential trade-off among

economic factors, competitiveness, and integrity and environment are subject to the economic and/or societal goals of different stakeholders or stakeholder groups.

To assess and compare Switzerland's position in the commodity trading sector, a number of criteria were defined along the three predefined key dimensions:

- **Economic factors:** This dimension contains tangible insights into the relative positioning of the trading hubs based on proximity to the physical asset base, access to the trading peer group, and access to financial and capital markets:
  - Proximity to physical asset base:
    - Coverage of the production volume value (in US$) across different commodity asset classes in adjacent time zones (assumed +/- three time zones)
    - Coverage of the consumption volume value (in US$) across different commodity asset classes in adjacent time zones (assumed +/- three time zones)
    - Regional access to midstream assets, including storage capacities, bulk freight, and pipeline network
  - Access to trading peer group:
    - Density of trading company offices/headquarters that are located in the hub (such as number of trading companies in the respective hub)
    - Density of trader population represented (in the number of front-office FTEs)
    - Traded volumes based on the realized gross margin (merchanting)
  - Access to financial and capital markets:
    - Presence of brokers (assessed by market share of brokers in the respective hub)
    - Number of exchanges and the value of exchange-traded contracts in US$
    - Presence of price markers (the number of price markers per region)
    - Availability of trade financing assessed in volumes of trade financing in US$
- **Competitiveness:** This dimension provides insights into the key strengths as well as the unique location features of the hubs, taking into account the extent to which there is a stable, predictable, economically favorable (in terms of tax offsets, and incentives), and clear-cut regulatory regime that facilitates commodity trading, as well as attractiveness to talent and efficient infrastructures:
  - Stable and clear environment:
    - Political environment:
      - Government stability
      - Policy stability
      - Openness to foreign ownership
      - Level of corruption
    - Legal:
      - Protection of property rights

        - Judicial independence
    - Fiscal, macro- and microeconomics:
        - Market size, in terms of domestic and foreign markets (market access), including domestic demand
        - Tax offsets for commodity traders (corporate income tax, including potential offsets for commodity traders)
        - Productivity
  – Efficient setup and support structure:
    - Attractiveness for talent:
        - Average wages in commodity trading industry per hub
        - Cost of living
        - Private tax, including potential deductions for individual-level income
        - Quality of living
        - Flexibility of hiring and firing practices
        - Education and training
    - Infrastructure:
        - Cost of real estate (average office rental prices)
        - Technology readiness
        - Robust financial services capable of meeting business needs (including payments, accounting, and more)

- **Integrity and environment:** This dimension focuses on regulations regarding conduct, including human rights, transparency, financial crime, and environmental protection, as well as public initiatives led by various stakeholders:
  – Conduct and regulations to ensure business integrity:
    - Transparency:
        - Strong audit and reporting standards
        - Human rights policies in terms of political rights and liberties
        - Health, safety, and environment (HSE) policies in terms of the number of signed fundamental, governmental, and technical conventions
    - Financial crime:
        - Anti-money laundering practices, such as managing the risk of money laundering and/or terrorist financing
        - Historical rogue trading activity (the number of top 50 cases in terms of trading losses)
    - Human rights:
        - Hours worked per week

- Workers' rights violations per hub

– Public initiatives related to combatting corruption (such as transparency on governmental payments), human rights, and environmental compliance:
  - By NGOs, public, or government:
    - Payments and illicit financial flows
    - Human rights
    - Environment
  - By industry:
    - Payments and illicit financial flows
    - Human rights
    - Environment

1.3. Benchmarking methodology

The trading hubs have been ranked for each category, based on publicly available data linked to each dimension. (See Figure 5.)

Figure 5: Benchmarking methodology overview

	A. Economic factors				B. Competitiveness				C. Integrity and Environment		
	Proximity to physical asset base	Access to trading peer group			Stable & clear environment: Fiscal	Efficient setup & support structure: Infrastructure			Human rights		
Rank	Production	Commodity traders	…	A. Evaluation (avg. placement)	Taxation level	Real estate	…	B. Evaluation (avg. placement)	AML	…	C. Evaluation (avg. placement)
1	Country 4	Country 1	…	Country 4	Country 5	Country 1	…	Country 5	Country 2	…	Country 2
2	Country 5	Country 2	…	Country 1	Country 4	Country 5	…	Country 1	Country 1	…	Country 1
3	Country 3	Country 3	…	Country 3	Country 1	Country 2	…	Country 4	Country 3	…	Country 3

For metrics consisting of a range of data from multiple sources, such as data drawn from different asset classes, the ranking is based on an unweighted average.

Final rankings have been established for each of the three key dimensions, based on an average of the underlying metrics. To avoid subjectivity, the metrics making up each dimension and sub-dimension respectively were equally weighted.

No attempt was made to derive a single composite ranking across economic factors, competitiveness, and integrity and environment, as each dimension is subject to the economic and/or societal goals of different stakeholders and groups.

Additionally, while all five hubs were compared against each other along each of the metrics, the benchmarking analysis focuses on a deep-dive on Switzerland and a summary of distinctive features of the other hubs. This is due to the objective of understanding the key strengths of other hubs from Switzerland's perspective and for positioning the Swiss hub going forward. The potential for improvement by the other hubs is not the focus of this report.

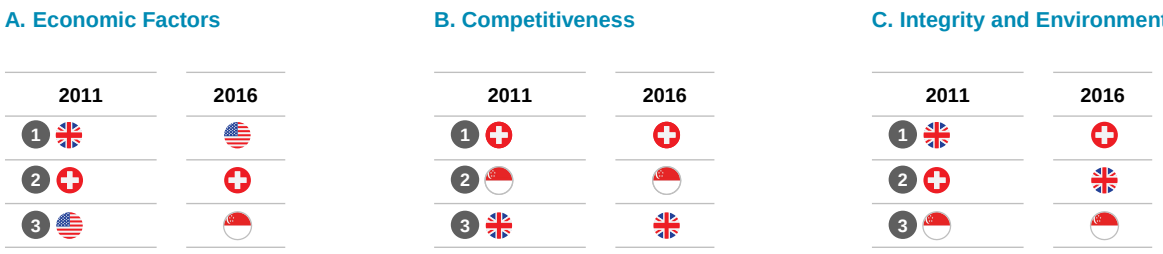
2. The Swiss commodity trading sector as compared to other international hubs – Overarching conclusions

Based on the methodology described above, Switzerland has remained stable in its ranking, when compared to peers, and is consistently in the top three across most of the metrics. (See Figure 6.) In particular, Switzerland maintains:

- Strong position in economic factors:
  - Ideal geographical positioning and coverage of time zones, enabling Swiss-based commodity traders to execute trades across Asia and the Americas in the same day
  - Legacy of a high concentration of commodity trading peer group and associated talent
  - High trading volumes and leading positions across most of the asset classes
  - Access to financial markets driven by a highly developed cluster of services around commodity trading, such as financing, legal, and accounting services
  - Access to European markets, such as London Metal Exchange, the global center for industrial metals trading, Deutsche Börse's Eurex Exchange, one of the world's largest regulated markets for derivatives trading, and other regional exchanges, such as ICE Futures Europe, Euronext, ICE Endex in Amsterdam, and SIX in Zurich
- Leading position in competitiveness: stable legal environment, efficient fiscal policies, and attractiveness for talent, contributing to its overall competitiveness
- Leading place in integrity and environment: high standards and control mechanisms, contributing to the reputation of the commodity traders based in Switzerland, as well as the security and quality of the traded products, given its leading audit standard for the origination of select asset classes, such as gold

Based on the data, Switzerland has a very balanced profile, with several clear strengths and very few weaknesses.

Figure 6: Average placement across three key dimensions for 2011 vs. 2016 (based on the evaluated data)



Looking forward, Switzerland's position faces serious threats driven by the following factors (see Figure 7):

- Macroeconomic shifts, such as commodity flows moving to Asia, which may result in traders looking to expand from more mature Western markets into emerging geographies

- Decreasing margin environment, resulting in pressure on commodity traders to look for greater cost efficiencies
- Increasing competitiveness efforts of rival hubs, resulting in a shrinking tax advantage, lower cost bases for traders, and therefore increasing commodity trading population outside of Switzerland

Figure 7: Indicative outlook across three dimensions for 2021, based on qualitative assessment of existing and emerging trends

A. Economic Factors

2021
The USA is expected to benefit from emerging new commodities and expansion of European players in the USA
Switzerland is expected to decrease, given shift of trading volumes to Asia and decrease of players' presence – although, it could slightly benefit from metal traders and emerging new commodities
Singapore is expected to benefit from shift of volumes and traders, and Chinese consumption of new metals

B. Competitiveness

2021
Switzerland is expected to decrease, given increasing cost pressure and redistribution of front office roles outside of Switzerland, but could benefit from advancement into digitization
Singapore is expected to benefit from increasing domestic workforce, relative cost efficiency in terms of mid- and back-office functions and high quality of talent as well as governmental efforts related to digitization
The UK may benefit from available talent specialists, however, Brexit uncertainties are beginning to affect firm's choices

C. Integrity and Environment

2021
Switzerland expected to remain rather stable, as public activism is expected to increase resulting in higher standards and quality offset by higher cost bases
The UK expected to benefit from increasing alignment of international regulations on tax, integrity and environment
Singapore expected to benefit from alignment of international regulations, but needs to focus more on commodity trading related initiatives

Based on the current positioning of the hubs and the developments of the past years, Switzerland may require coordinated and continuous improvement across several dimensions to maintain its solid rankings and competitiveness, rather than select improvement in any single dimension. Furthermore, implications from disruptive trends, such as digitization, should be explored as potential enablers.

3. Benchmarking analysis: Current positioning of the hubs and recent developments over the past five years

The benchmarking analysis is based on an assessment of each hub along three key dimensions, which will be outlined in detail in the following chapters:

- A. Economic Factors – Chapter 3.1
- B. Competitiveness – Chapter 3.2
- C. Integrity and Environment – Chapter 3.3

3.1. A. Economic Factors

The category of economic factors attempts to analyze the economic role of the hubs in terms of their proximity to physical assets, connection to the commodity trading sector, and access to capital and financial markets.

The dimension consists of three key sub-groups, all of which were equally weighted in the final ranking (for additional details on the definition of this metric, please refer to Appendix D.1):

- Proximity to physical asset base, which includes the value of the production and consumption volumes and midstream assets; coverage of production and consumption volumes was mapped by +/- three adjacent time zones per hub; and midstream assets were mapped on a regional/continental basis
- Access to trading peer group, which assesses office size or company headquarters located in the hub to allow for quicker access to information and relationship building; additionally, the population of traders (including front-office staff) and trade volumes were also included in this sub-group or sub-dimension
- Access to financial and capital markets, which encompasses brokers, exchanges, price markers to facilitate seamless deal structuring, financing, and trading between counterparties through efficient market infrastructure

3.1.1. Current positioning of the hubs and recent developments

The US, Switzerland, and Singapore rank very highly in economic factors based on the data examined. (See Figure 8.)

For 2016, the US ranks first, due to its broad midstream network of over 2 million kilometers in gas pipelines, roughly 300,000 km in oil and product pipelines, and oil storage facilities of about 1.8 billion barrels. Its established commodity trading peer group, large base of talent, and access to financial and capital markets have contributed to its top ranking. In terms of access to financial and capital markets, the US increased its positioning due to a rise in brokered volumes, according to *Energy Risk*. Based on the data, Switzerland ranks second, mainly driven by its consistent positioning in the top three in most of the categories. Switzerland is ideally located in terms of time zones, offering the possibility to trade with the Americas and Asia on the same day. It is therefore able to cover around US$1.4 trillion in produced and US$900 billion in consumed physical assets, including various asset classes (oil, gas, coal, metals, and softs).

Switzerland ranks second, overall, due to its strong trading peer group presence. There are indications of a decrease in the number of commodity traders, which may be the result of market consolidation, migration of activities to other locations, and a decline in industrial activity in the region. This assessment is based on anecdotal evidence (the result of interviews), as opposed to any quantitative data. The interviews also indicated that independent commodity traders in particular have decreased their presence in Switzerland for two reasons. First, traders have followed shifting commodity flows to Asia to ensure proximity to clients there. Secondly, traders are becoming more cost conscious, given the stagnating or decreasing margins across various asset classes, whereas Switzerland is a high-cost location. A migration of activities may be taking place under the radar, such as by moving key functions outside Switzerland and reducing headcount through attrition, without moving the headquarters. This development will be further covered in Chapter 3.2.

In terms of access to financial and capital markets, Switzerland represents the largest trade-financing market, with roughly US$62 billion in trade financing as of 2016, according to *IJGlobal*, a project-finance and infrastructure journal. Over the past five years, Switzerland has maintained its leading position in trade financing (US$29 billion as of 2011), while the UK overtook the US for second place, with US$20 billion and US$16 billion, respectively (Office for National Statistics Balance of Payments, 2016), (US Bureau of Economic Analysis, 2016). While Switzerland has limited domestic commodity market infrastructure, such as exchanges or price markers, it has an easy access to providers across Europe and the Middle East.

As of 2016, Singapore ranks third in the economic factors dimension, driven by an increase in metrics related to proximity to physical assets and access to trading peer group. In terms of production and consumption, Singapore's time zone allows it to cover US$1.1 trillion and US$1.2 trillion respectively in physical asset value. Singapore's port led in volume of loaded and unloaded goods (crude, products, and dry), at about 9,100 metric tons in 2016. Singapore's oil storage capacity ranks second to the US, at about 1.6 billion barrels. Based on data, traders in Singapore have increased their profitability (gross margin) to US$6.7 billion as of 2016, driven by a shift in both physical and financial trading volumes to the East and the establishment of a larger set of trading companies with Singapore as their domicile. Based on interviews, the shift of volume towards the East and the rise of Singapore have been the key developments of the past several years, indicating an incremental expansion of trading volumes outside the European hubs and resulting in a relative decrease in market share for them. (See Figure 9.)

Figure 8: Current positioning of the hubs on economic factors

	Proximity to physical asset base			Access to trading peer group			Access to financial and capital markets					
2016	Production	Consumption	Mid-stream	#comm. Traders	#FTEs	Profitability	Brokered volumes	#exchanges	Exchange-traded volumes	#price markers	Trade financing	Final ranking
1												
2												
3												

Comment

	Value of commodity production in $BN	Value of commodity consumption in $BN	Average placement midstream[1]	Company repre-sentation by hub	In FTEs[3]	Value of Merchanting in $BN	Average placement brokered volumes[1]	# exchanges per hub	Volume split of exchange-traded contract value (in $)	Average placement price markers[1]	In $BN
	2 1,425	3 865	3 2.6	2 ~410[2]	~780	1 26.0	2 2.8	3 0	0%	2 2.0	1 61.8
	1,095	654	3 2.6	1 ~640	3 ~820	4.9	1 1.6	2 2	2 32%	1 1.5	2 19.6
	1,036	722	1 2.0	~270	1 ~1,640	2 9.2	1 1.6	1 5	1 58%	3 2.5	3 15.6
	3 1,123	1 1,192	2 2.4	3 ~400	2 ~1,010	3 6.7	3 4.0	2 2	3 6%	3.3	7.8
	1 1,607	2 1,036	3.0	~110	~470	4.9	5.0	2 2	4%	4.5	7.7

1. Deep-dives on underlying data and sub-metrics provided
2. As of March 2017; A total number of 496 companies with a core activity of commodity trading or related was identified; According to the Federal Statistical Office, of the 496 identified companies; 12 companies are not in the register, 19 are active but below the level of employment that the FSO collects (empty employment in the register), 10 are new or reactivated (employment not inputted in the database yet), 14 are capital companies (no employment in the register), 15 are not active (no employment), 10 are in liquidation according to the commercial register, and 11 are delisted
3. Front office only, i.e. employees with job titles: trader, trading manager/director/assistant/analyst/expert/specialist/ support analyst, chief trader, head of trading, trade marketing executive, marketing, origination manager/director, marketing manager/director, sales and marketing specialist

Sources: (IMF, 2017), (BP, 2017), (World Bank, 2017), (Central Intelligence Agency (CIA), 2017), (UNCTAD, 2016), (Erdöl-Vereinigung, 2017), (IEA, 2017), (Capital IQ, 2017), (IE Singapore, 2016), (Dubai Chamber, 2017), (SNB, 2016), (Office for National Statistics Balance of Payments, 2016), (US Bureau of Economic Analysis, 2016), (Department of Statistics Singapore, 2016), (UAE Central Bank, 2016), (Bureau of Transportation Statistics, 2017), (STSA, 2017), (Energy Risk, 2017), (IJGlobal, 2017), (Platts, 2017), (Oliver Wyman proprietary data and analysis, 2017)

Figure 9: Recent developments since 2011 for economic factors

	Proximity to physical asset base			Access to trading peer group			Access to financial and capital markets					
2011 2016	Production	Consumption	Midstream	# comm. Traders	# FTEs	Profitability	Brokered volumes	#exchanges	Exchange-traded volumes	# price markers	Trade financing	Final ranking
1												
2												
3												

3.1.2. Switzerland

As noted, Switzerland holds a solid and stable position in the economic category, which is the result of a high level of commodity trading peer group access, high quality workforce, and financing opportunities.

Switzerland's differentiating factors include an ideal location between American and Asian time zones and the direct coverage of the Europe, Middle East, and Africa regions, offering good proximity to physical assets. Based on the methodology described in Chapter 1.2, the proximity to physical assets has been consistently defined by adjacent +/- three time zones. This results in Switzerland benefitting from being one hour closer to Middle East than the UK, and in theory giving it additional coverage of physical assets. (See Figure 10.) In order to compare proximity to commodity flows of Switzerland vs. UK, the volumes were converted into financial values. Based on this analysis, Switzerland has access to high-value assets, such as oil and gas, while it is further away from assets with a lower total value, such as coal, metals, and softs.

Figure 10: Proximity to production and consumption per hub, as of 2016

Production by asset class[1]
In $ BN, +/- 3 time zones, 2016

	Oil	Gas	Coal	Precious metals	Base metals	Softs	Total Production	Final rank Production
	857	300	94	32	38	103	1,425	2
	678	232	41	25	29	89	1,095	4
	398	183	55	44	74	282	1,036	5
	120	94	343	49	115	401	1,123	3
	870	305	140	33	46	214	1,607	1

Consumption by asset class[1]
In $ BN, +/- 3 time zones, 2016

	Oil	Gas	Coal	Precious metals	Base metals	Softs	Total Consumption	Final rank Consumption
	467	273	37	23	23	42	865	3
	358	210	7	20	22	38	654	5
	431	186	28	15	27	35	722	4
	489	118	181	101	176	128	1,192	1
	534	282	64	65	31	62	1,037	2

1. Oil includes crude oil, shale oil, oil sands and NGLs (natural gas liquids); gas includes natural gas produced for Gas-to-Liquids transformation; non-precious metals include aluminium, copper, iron ore, lead, nickel, tin and zinc; precious metals include gold, platinum, silver; softs include bananas, cocoa, coconut, palm kernel oil, coffee, cotton, maize, natural rubber, soybean oil, rice, soybeans, sugar, tea and wood pulp.
Note: Regional split as follows: Switzerland: Europe and Eurasia, Middle East and Africa; UK: Europe, Eurasia excl. Kazakhstan, Pakistan, Turkmenistan, Uzbekistan, plus Middle East excl. Iran and Iraq, plus Africa; US: North, Central and South Americas, for UAE: Europe and Eurasia, Middle East, Africa and India; for Singapore: APAC incl. India

Sources: (IMF, 2017), (BP, 2017), (World Bank, 2017), (Central Intelligence Agency (CIA), 2017), (UNCTAD, 2016), (Erdöl-Vereinigung, 2017), (IEA, 2017), (Oliver Wyman proprietary data and analysis, 2017)

Switzerland also benefits from its proximity to the high-traffic European bulk ports in the Amsterdam, Rotterdam, and Antwerp (ARA) area, with about 6,700 million metric tons of loaded and unloaded goods. Unlike the US and Dubai, Switzerland is nearby smaller pipeline networks. Figure 11 provides an overview on the three equally weighted dimensions for midstream: storage, bulk ports, and pipeline networks. The methodology results in a leading rank for the US based on its oil-storage capacities and bigger pipeline network, despite access to a smaller number of bulk ports when compared with Singapore, for example.

Figure 11: Proximity to midstream per hub, as of 2016

Midstream: Storage, bulk freight and pipeline network
2016

	Storage capacities	Bulk ports in MT						Pipeline network[1]	
	Oil storage capacities (mmbbl)	Goods loaded: Crude	Goods loaded: Petroleum products and oil	Goods loaded Dry cargo	Goods unloaded Crude	Goods unloaded Petroleum products and oil	Goods unloaded Dry cargo	Gas (km)	Oil and refined products (km)
	1,350	505	416	2,675	736	445	1,958	481,341	142,481
	1,350	505	416	2,675	736	445	1,958	481,341	142,481
	1,760	224	84	1,020	66	101	427	2,152,495	279,734
	1,560	953	523	2,432	817	479	3,869	124,328	62,253
	850	385	212	1,376	338	231	1,053	494,922	162,493

Ranks per asset class and final metric ranking methodology

	Storage capacities	Bulk ports in MT							Pipeline network				
	capacities	Goods loaded: Crude	Goods loaded: Petroleum oil	Dry cargo	Goods unloaded Crude	Goods unloaded Petroleum oil	Goods cargo	placement	Gas (km)	Oil and refined products (km)	Pipeline placement	ment	Midstream
	3	2	2	1	2	2	2	1.8	3	3	3	2.6	3
	3	2	2	1	2	2	2	1.8	3	3	3	2.6	3
	1	4	4	4	4	4	4	4.0	1	1	1	2.0	1
	2	1	1	2	1	1	1	1.2	4	4	4	2.4	2
	4	3	3	3	3	3	3	3.0	2	2	2	3.0	4

1. Assumed stable based on available data as of 2013/2017

Sources: (IMF, 2017), (BP, 2017), (World Bank, 2017), (Central Intelligence Agency (CIA), 2017), (UNCTAD, 2016), (Erdöl-Vereinigung, 2017), (IEA, 2017), (Oliver Wyman proprietary data and analysis, 2017)

Switzerland benefits from a well-established existing peer base, consisting of independent traders and representing half of the global merchanting[3] volume – a leading position that has not changed since 2011.

While the overall gross margin has been increasing slightly since 2011, it is important to note that the margin per volume unit (that is, per barrel or per ton) has been consistently decreasing. This results in the necessity to turn over more volume on a year-on-year basis to achieve stable or increasing gross margin results. This development is being driven by four megatrends:

1. Mature commodity markets: Traditionally, independent commodity traders earned their biggest profits from access to illiquid or semi-liquid commodities markets. Over time, a large majority of the commodity markets have become more liquid and transparent. The development can be illustrated in the example of thermal coal: Back in 2010, traders were able to earn margins of $3 to $5 per ton due to their long-term fixed-price supply arrangements. Now, the asset has become a widely traded commodity with transparent price benchmarks and indexed pricing, thereby reducing the potential margins by roughly 40 percent on average, to $1 to $3 per ton (Oliver Wyman, 2014).

2. New market structures: The commodity trading market has a three-tiered structure – producers, commodity traders, and consumers. In the past few years, the market structure has become more homogeneous: Large commodity producers are increasingly establishing trading activities, thereby putting more pressure on smaller players, while independent commodity traders are entering capital-intensive upstream or downstream activities. Examples of this trend include Mercuria with its upstream oil and coal assets, Vitol with upstream oil assets, and Trafigura with mines in Spain and Peru. Greater control of the value chain results in increased ability to offer competitive pricing, putting greater pressure on the smaller players.

3. Decreasing commodity price volatility: An overabundance of supply in many commodity classes results in lower volatility and decreasing trading margins—and consequently, more competitive pressures.

4. Reduced activity by banks in commodity trading and financing: Driven by regulations (including the Volcker Rule, Dodd-Frank and Basel III), banks were driven to reduce their proprietary and physical trading activities. Nearly all of the Western banks that were active in commodity trading (prior to the financial crisis) have either withdrawn from commodity trading or have scaled back their activities. Additionally, the banks have been faced with increased capital and transparency requirements for trade financing and commodities financing, forcing them to reassess the profitability and value of their lending activities and to consider exiting any business that does not provide the required level of return or raises reputational concerns. This has led to smaller players struggling with access to financing. The impact of this development has been twofold: on the one side, hedging opportunities have become scarcer, resulting in higher hedging costs, especially in the longer-term trades in niche markets. At the same time, smaller players have less choice of financial instruments, while bigger traders can offer to set up individual funds.

[3] Merchanting refers to goods trade where companies based in a select country purchase goods on the global market and resell them abroad, without the goods being imported into or exported from the country (SNB, 2016).

Despite limited access to a domestic commodities market infrastructure, Switzerland benefits from easy access to Europe's commodity-market infrastructure. This results in its second rank in market share of brokered volumes for 2016, which is driven by large international brokers based in Switzerland. (See Figure 12.)

An important element mentioned by interviewees is the 'cluster effect' of Switzerland as a hub. While there's no standard definition of a cluster for commodity trading, a few relevant factors can be put forward as conditional and self-enforcing for the development of a cluster:

- Geographic concentration of the trading peer group and talent (covered in Chapter 3.1.1 above)
- Linked private-sector industries and other companies providing services relevant to competition (such as financing, legal, risk management, and accounting)
- Interconnectedness of institutions, both provided (such as government and educational institutions) and collaborative (such as research programs, think tanks, and trade associations)

The interviews highlighted the fact that both Switzerland and Singapore have the leading clusters for commodity trading (for details on Singapore see Chapter 3.1.5). Other hubs were described by interviewees as having particular focus areas, such as fintech in the UK, but were seen as being less mature in terms of their entire ecosystem around commodity trading, including accounting and legal services as well as trade financing.

Based on the quantitative data and qualitative comments by interviewees, Switzerland offers sophisticated financing opportunities driven by its developed banking industry, and it benefits from the large cluster of companies around the commodity trading sector, such as legal services. In terms of interconnected institutions, Switzerland is characterized by a number of educational programs dedicated to commodity trading and research (a Masters program at the University of Geneva and further education/certificate program at the Lucerne University of Applied Sciences and Arts). Additionally, interviewees named Switzerland as one of the leading hubs in terms of digital initiatives, including the national initiative digitalswitzerland and Crypto Valley in Zug. But despite the digital initiatives, some commodity traders stated that the Swiss government must become more proactive in involving commodity trading in the digital space and balance out the current focus on fintech and biotech industries.

Switzerland's positioning is also further strengthened by the availability of a number of regional price markers across all asset classes. (See Figure 13.)

Figure 12: Brokered volumes by hub, as of 2016

Broker volumes[1]
Market shares per hub, 2016

	Energy	Oil and products	Natural gas	Power	Precious metals
	17%	8%	14%	20%	8%
	27%	29%	28%	37%	29%
	27%	34%	27%	19%	36%
	6%	6%	6%	7%	7%
	1%	1%	1%	1%	1%

Ranks per asset class and final metric ranking methodology

	Energy	Oil and products	Natural gas	Power	Precious metals	Average placement	Final rank for Broker volumes
	3	3	3	2	3	2.8	2
	2	2	1	1	2	1.6	1
	1	1	2	3	1	1.6	1
	4	4	4	4	4	4.0	3
	5	5	5	5	5	5.0	4

Sources: (Energy Risk, 2017)

Figure 13: Price markers by hub, as of 2016

Price markers
# of markers per hub, 2016

	Metals	Natural Gas	Petroleum Assessment	Agriculture	Coal	Petrochemicals
	24	168	313	21	10	50
	35	168	406	21	10	50
	18	116	539	4	20	43
	12	0	321	0	0	77
	0	0	31	0	0	0

Ranks per asset class and final metric ranking methodology

	Metals	Natural Gas	Petroleum Assessment	Agriculture	Coal	Petrochemicals	Average placement	Final rank for Price markers
	2	1	4	1	2	2	2.0	2
	1	1	2	1	2	2	1.5	1
	3	3	1	3	1	4	2.5	3
	4	4	3	4	4	1	3.3	4
	5	4	5	4	4	5	4.5	5

Sources: (Platts, 2017)

3.1.3. United Kingdom

The UK's position is based on a strong peer group of traders, as well as its high-quality workforce and access to financial and capital markets. Given that our analysis is based on a relative positioning, the UK's ranking in the economic factors dimension has decreased over the

past years driven by the advance of other hubs. In terms of accessible production, the UK is highly concentrated on oil, which represents over 60 percent of the asset portfolio. Consequently, the UK's dependency on oil results in a higher sensitivity towards price decreases in crude. In contrast to the UK, Singapore has a more balanced profile, consisting of more than 30 percent from coal, roughly 30 percent soft commodities, and between 10 percent and 15 percent oil. Because of its diversified asset base, Singapore's sensitivity to a decrease in price of any specific asset class is much less pronounced. Similarly to the UK, Switzerland has faced declining oil prices – but due to the additional time zone covering the growing region of Eurasia (Kazakhstan, Pakistan, Turkmenistan, and Uzbekistan), Switzerland has not been affected to the same degree as the UK.

Overall, the UK is characterized by the concentration of financial institutions and an established market infrastructure that includes brokers and exchanges (such as the London Metal Exchange), offering the greatest number of price markers, with a total of 690 price markers as of 2016, according to Platts. Another differentiating factor of the UK versus hubs overseas is its ability to trade with both Asia and the Americas on the same day. (See Figure 10.)

Similar to Switzerland, the UK provides a good coverage of midstream facilities through its proximity to the bulk ports of Amsterdam, Rotterdam, and Antwerp. (See Figure 11.) Over the past several years, the UK has remained stable in terms of proximity to midstream, while Singapore has increased its oil storage capacities and volumes handled by bulk ports.

The UK is in the lead in terms of the number of commodity traders, according to CapitalIQ. It is home to many asset-backed traders, including the trading arms of oil and gas companies, owing to the following key factors:

- Proximity to group headquarters and location of exchange listings
- Coverage of business partnerships and relationships (intra-group as well as externally with clients)
- Infrastructure availability and accessibility needed for trading floors
- Access to talent from financial services across organizational structure (traders, regulatory and compliance specialists, as well as front, middle, and back office talent)
- Close relationship to government (applicable especially for national companies), resulting in support and lobbying

Finally, the UK has seen a significant reduction in merchanting (gross margin from goods transit trade, that is, trade in goods, which are not imported or exported), from roughly $12 billion in 2011 to about $5 billion in 2016. While the UK has increased its trade-financing volumes from around $4 billion in 2011 to $20 billion in 2016, the average rank increase in the sub-dimension of access to capital and financial markets has not been sufficient to offset the decrease in its rankings in two sub-dimensions: proximity to physical asset base and access to trading peer group.

3.1.4. United States

When comparing hubs across the economic factors dimension for 2016, the US ranks first, driven by an increase in ranking for profitability of commodity traders (merchanting) and brokered volumes. Its leading position in the midstream network category and overall strong access to capital and financial markets added to its ranking. The US also benefitted from its

access to a trading peer group, including concentration of talent and higher gross margins in international and domestic trading activities. Over the past years, the US has consistently ranked first in market share of exchange-traded contracts by value (55 percent in 2011 and 58 percent in 2016, according to Oliver Wyman's proprietary data and analysis), supported by the expansion of the New York Futures Exchange into physical commodities.

Its leading oil and gas pipeline networks and storage facilities set the US apart. (See Figure 11.) Furthermore, the US has a large trader population, resulting in access to a skilled workforce. It also leads in brokered volumes, being the primary location for many commodity brokerage firms. (See Figure 12.) On par with the UK, the US offers strong access to financial and capital markets via New York. Finally, a high number of price markers come from the US, especially in petroleum assessment, with a total of 539 markers, according to Platts. (See Figure 13.)

3.1.5. Singapore

Singapore benefits from its proximity to physical assets across production, consumption, and midstream, which have been fueled by Asia's rising growth. Since 2011, Singapore has risen steadily in the standings, and currently ranks third in the assessment of economic factors. This advance has been driven in part by a growing number of commodity trading companies (currently more than 300 companies, according to CapitalIQ), and a rising population of front-office traders. The development of a large trading cohort is the result of Singapore's significant efforts and investment towards cultivating a domestic trading peer base, including:

- Introduction of Global Trader Program (GTP), incentivizing Singapore-based commodity traders through tax offsets (described in greater detail in chapter 3.2)
- Establishment of a commodity trading 'cluster,' consisting of clients, financial institutions, and legal services, driven by growth of physical and trading volumes in the region, especially coal, metals, and softs for both production and consumption (see Figure 10)
- Singapore's legacy in terms of infrastructure, such as refineries, and access to a strong midstream infrastructure, especially its port and capacity for bulk re-handling (see Figure 11)

The expanded trading peer group has led to an increase in profitability (merchanting), to US$6.7 billion as of 2016. (See Figure 8.)

Singapore also benefits from its commodity exchanges – ICE Futures Singapore and Singapore Exchange (SGX, formerly SIMEX) – which cover 6 percent of the value of exchange-traded contracts, as compared to peers. Singapore's development of a local commodity market infrastructure goes hand-in-hand with an increase in access to financial markets, with the trading and banking hubs benefitting from (and reinforcing) growth.

In comparison to Switzerland's cluster, Singapore's offering as a global financial center is enhanced by an efficient US$/RMB clearing and risk management infrastructure, and easy access to commodity exchanges, including price discovery and hedging solutions (such as SICOM rubber futures, SGX iron ore swaps, and the Platts FOB Straits benchmark) (IE Singapore, 2015).

Several interviewees noted Singapore's heritage of strong back-office capabilities, ranging from legal to accounting services. Additionally, Singapore has invested in developing a trading and supporting-services community through various instruments: incentives via the Global Trader Program and promotion of service providers (including legal support) to create a vibrant trading

environment. A recent example of this effort can be seen in how IE Singapore worked together with the International Steel Trade Association (ISTA) in 2016 to create a Singapore-based branch of the association, supporting firms that provide services to the steel and steel-making raw materials sector. The establishment of ISTA's Singapore-based branch was supported by a local law firm (Clyde & Co, 2016).

Singapore's authorities have invested in the nationwide initiative Smart Nation. Smart Nation aims to work with citizens and businesses to create solutions across selected domains where digital technology has an impact (such as transportation, home and the environment, business productivity, health, and public-sector initiatives). The undertaking is managed by the Digital Government Office in the Prime Minister's Office of Singapore and is supported by other government agencies. The government has put infrastructure and policies in place to encourage innovation, experimentation, and risk taking.

These initiatives may also affect the development and use of digital technologies in commodity trading, impacting existing revenue models and cost bases.

3.1.6. Dubai

Compared to peers, Dubai ranks first in terms of proximity to production, especially in oil and gas and precious metals (specifically, gold), having the capability to cover Europe, Middle East, Africa, and West Asia by its time zone. While Dubai is perceived as less mature in comparison to other more established commodity-trading hubs, interviewees observed that traders are taking up operations in Dubai, especially in relation to origination and marketing, and have rapidly increased their presence there over the past years in terms of front-office staff (a factor that could become a competitive advantage if it continues at the current pace of growth).

The key factor differentiating Dubai is its ability to capitalize on shifting flows from West to East. Dubai covers the largest physical asset production value of about US$1.6 trillion, while for consumption it connects to the largest markets of coal, metals, and softs in Asia, as well as Africa and Europe (based on a maximum difference in time zones of +/- three hours), totaling roughly US$1 trillion. (See Figure 10.) Especially in terms of Africa coverage, Dubai has an advantage versus other hubs, being best connected in terms of air and sea travel with the African continent. Dubai has also laid the foundations for a well-developed market infrastructure with two dedicated commodity exchanges – Dubai Gold and Commodities Exchange (DGC) and Dubai Mercantile Exchange (DME), founded in 2005 and 2007, respectively.

3.2. B. Competitiveness

Competitiveness (the second dimension) evaluates and compares the attractiveness of the Swiss hub's business environment with its peers. Our approach breaks down competitiveness into two equally weighted subsets (for addition details on metrics definition, please refer to Appendix D.2):

- Stable and clear regulatory environment: Political and legal, as well as fiscal, macro- and microeconomics
- Efficient setup and support structure, including attractiveness for talent and infrastructure

3.2.1. Current positioning of the hubs and recent developments

In comparison with other hubs and based on the metrics, Switzerland ranks first, due to its positioning in infrastructure and attractiveness for talent. (See Figure 14.) Switzerland benefits from a well-regarded legal system and strong productivity, as per the World Economic Forum Competitiveness Index Executive Survey.

However, Switzerland's advantage in corporate taxation is decreasing, not just when compared to Singapore and Dubai, but also to the UK, its principal European competitor. Switzerland has seen an increase in its overall corporate tax rate, from 18 percent to 24 percent (about 12 percent for commodity traders based in the canton of Geneva), while the UK has reduced corporate tax rates since 2011, from 26 percent to 19 percent. Interviewees confirmed that the tax advantage between the UK and Switzerland—and thus the opportunity to offset Switzerland's high cost of living—has shrunk.

Singapore ranks high in government and policy stability, educational system, and a 5 percent corporate tax rate for commodity traders, while being characterized by very low perceived corruption (as per WEF index), which results in an overall competitiveness ranking that is second only to Switzerland. Based on our interviews, the current generation of traders (especially at the senior level) may perceive the cost in Singapore as being as high as in Switzerland, but may see Switzerland as offering a higher quality of life.

This perception, however, may change in the mid- to long term, given that one of the requirements of Singapore's Global Trader Program is hiring local staff. Plus, according to our interviews, junior traders without family responsibilities are attracted by large cities and perceive Switzerland as expensive and less cosmopolitan compared to London or Singapore. According to the WEF Competitiveness Index data, Singapore has declined slightly in terms of its attractiveness for talent, due to restrictions of flexible hiring and firing practices (potentially driven by its restriction of work permits for expats).

As shown in the WEF Competitiveness Index, Switzerland, Singapore, and the US have risen in terms of their political environment since 2011. (See Figure 15.) Firstly, government and policy stability in Switzerland and the US rose, compared to 2011. In 2011, growth figures for many economies had to be adjusted downward, which reduced confidence in the ability of governments to take steps necessary to restoring growth in the US and Europe. Secondly, public institutions in Singapore have improved since 2011 and are now perceived to be the most transparent and highly efficient among their peers. However, Singapore's attractiveness for foreign ownership has declined (as per the WEF index), based on its efforts to build up its local

business and workforce by limiting work permits, as well as the requirements for firms to increase domestic operations (via Global Trader Program requirements).

The UK is perceived as business friendly for foreign ownership and has a relatively lower cost of living: 79 percent vs. 100 percent in Switzerland and 107 percent in Singapore, based on Mercer cost-of-living benchmarks. But the uncertainties around Brexit are impacting its policy stability (as per WEF index). Additionally, the UK's lower average wages, combined with depreciation of the British pound (GBP), relatively high private income taxes—and rising real estate prices—have had a negative effect on its attractiveness for talent, and in turn on its overall ranking.

The UAE has seen an increase in property rights and judicial independence, resulting in an improved ranking in the legal environment sub-dimension. Additionally, the UAE has advanced in terms of market size and productivity, according to the WEF, driven by its effort to diversify the economy in response to the drop in oil prices.

The availability of financial services (such as the variety of products and services for businesses beyond financial and capital markets) increased in the US and Singapore, due to their advancement in digitization and well-developed financial sectors. In contrast, the UK ranked slightly lower in the WEF Competitiveness Index than in the previous years, potentially driven by stricter regulations and uncertainties around the financial sector in the wake of Brexit.

Figure 14: Current positioning of the hubs for dimension B. Competitiveness

	Stable & clear environment								
	Political				Legal		Fiscal, macro- and microeconomics		
2016	Government stability	Policy stability	Foreign ownership	Anti-corruption	Property rights	Judicial independence	Market size	Tax offsets for comm. traders	Productivity
1	CH, UK, SG	SG	UK	SG	CH	CH	US	AE	CH
2	AE	CH	SG	CH, UK	UK, SG	UK	UK	SG	SG
3	US	US	AE	AE	AE	AE	AE	CH	AE
Comment									
	WEF Survey[1]	WEF Survey[1]	WEF Index (0-7/low-high)	WEF Survey[1]	WEF Index (0-7/low-high)	WEF Index (0-7/low-high)	WEF Index (0-7/low-high)	Tax rate (in %) for commodity traders[2]	WEF Index (0-7/low-high)
CH	1 0.0	2 3.9	5.5	2 0.2	1 6.5	1 6.5	4.6	3 11.6[3]	1 5.6
UK	1 0.0	8.7	1 6.2	2 0.2	2 6.3	2 6.3	2 5.7	19.0	4.8
US	3 1.4	3 4.9	5.1	1.8	5.6	5.3	1 6.9	29.0[4]	5.2
SG	1 0.0	1 1.2	2 6.1	1 0.1	2 6.3	5.6	4.7	2 5.0[5]	2 5.5
AE	2 0.8	5.2	3 5.7	3 1.6	3 5.7	3 5.7	3 4.9	1 0.0[6]	3 5.3

1. From the list of factors, respondents to the World Economic Forum's Executive Opinion Survey were asked to select the five most problematic factors for doing business in their country. The score corresponds to the responses weighted according to their rankings, i.e. 0 – least problematic
2. Corporate tax rates minus tax offsets for commodity trading companies
3. Based on trade offsets for commodity traders in canton Geneva
4. Incl. average effective corporate tax income rate at federal level (of 24%) and average effective state rate of Texas (of 5%), which may be deduced from profits subject to federal income tax
5. Assuming qualification for Global Trader Program (GTP)
6. Assuming no engagement in the production of oil and gas or extraction of other natural resources in the United Arab Emirates

Sources: IMF, WEF Competitiveness Report, PWC Worldwide Tax Summaries, Deloitte Corporate Tax Rates 2017, Reuters, National legislations, Oliver Wyman proprietary data and analysis

Efficient setup & support structure

	Attractiveness for talent						Infrastructure			
2016	**Wages**	**Cost of Living**	**Private tax**	**Quality of Living**	**Hiring and firing practices**	**Education and training**	**Real estate**	**Technological readiness**	**Availability of FS**	**Final ranking**
1										
2										
3										

	Average salary (in USD)[1]	% indexed to Switzerland as base[2]	Private tax rate (in %)[3]	% indexed to Switzerland as base[4]	WEF Index (0-7/low-high)	WEF Index (0-7/low-high)	Office rental price in USD/sq. m./year[5]	WEF Index (0-7/low-high)	WEF Index (0-7/low-high)
1	~170 K	*Oliver Wyman's and Mercer's proprietary data*	20	*Oliver Wyman's and Mercer's proprietary data*	5.8	6.0	~820	6.4	6.5
	~110 K		31		5.1	5.5	~1,570	6.3	6.1
2	~150 K		21		5.1	5.9	~750	6.0	6.2
3	~130 K		22		5.6	6.3	~1,040	6.1	6.1
	~120 K		0		5.3	5.1	~840	5.8	5.5

1. Average salary of senior, mid-level and junior levels of asset backed and independent trading houses; excl. variable compensation due to firm-level variations (e.g. deferrals, equity)
2. Comparison of price levels among the hubs in ten categories (food at home, alcohol and tobacco, domestic supplies, personal care, clothing and footwear, home services, utilities, food away from home, transportation, sports and leisure)
3. Maximum private tax rates adjusted, assuming most efficient marital status and full potential deductions, e.g. 401K in the US
4. Comparison of six dimensions, excluding duplications with other metrics, e.g. housing and real estate (socio-cultural environment, medical and health considerations, public services and transport, recreation, consumer goods, natural environment)
5. For Switzerland: Geneva and Zurich; for UAE: Dubai; for US: New York and Houston (no available consistent data for Connecticut); for UK: London; private housing has been excluded, as strong positive correlation, based on Mercer Cost of Living data

Sources: (IMF, 2017) (WEF, 2016), (KPMG, 2017), (International Enterprise Singapore, 2017), (UK Government, 2017), (Deloitte, 2017), (Farge, 2012), (PWC, 2017), (Mercer, 2017), (Cushman & Wakefield, 2015), (Oliver Wyman proprietary data and analysis, 2017)

Figure 15: Recent developments since 2011 for dimension B. Competitiveness

	Political				Legal		Fiscal, macro- and microeconomics		
2011 2016	**Government stability**	**Policy stability**	**Foreign ownership**	**Anti-corruption**	**Property rights**	**Judicial independence**	**Market size**	**Tax offsets for comm. traders**	**Productivity**
1									
2									
3									

2011 2016	**Wages**	**Cost of Living**	**Private tax**	**Quality of Living**	**Hiring and firing practices**	**Education and training**	**Real estate**	**Technological readiness**	**Availability of FS**	**Final ranking**
1										
2										
3										

3.2.2. Switzerland

Switzerland ranked first in 2016 and in 2011, mainly driven by its attractiveness for talent and efficient setup for traders.

Switzerland offers a business-friendly environment and access to an educated, well-trained workforce grounded in commodity trading (acquired via the Master of Science in Commodity Trading program at the University of Geneva and similar university programs in the UK). According to the WEF, Switzerland enjoys a flexible employment environment. Additionally, it offers high average wages, which combined with the strength of the Swiss franc and attractive private taxation, makes Switzerland attractive to talent. Moreover, Switzerland's quality of life status (as per Mercer rankings) further sets it apart from the competition. Based on the WEF Competitiveness Index, Switzerland managed to increase its productivity score.

Historically, Switzerland has offered a stable political environment, a key criterion in choosing a location. Furthermore, non-Swiss-based commodity traders have pointed to Switzerland's neutrality as a reason for its attractiveness. At the same time, however, no Swiss-based commodity trader has mentioned this factor as an advantage or a decisive factor for its Swiss location, which suggests that it is not perceived as a key competitive advantage.

Industry participants, however, perceive Switzerland's political stability as decreasing, the result of recent referendums such as the Stop Mass Immigration, the 1:12 initiative to cap CEO pay, and the Swiss National Bank's decision to stop intervening in foreign-exchange markets. Based on interviews with both Swiss authorities and commodity traders, there's a growing uncertainty regarding Switzerland's liberal image. Some of the interviewees pointed out that Switzerland's direct democracy, which results in the 'direct translation' of public opinion into political initiatives, makes the management of unintended consequences more complex from the government's perspective.

Swiss authorities have said they are spending more time convincing the private sector that Switzerland is a pragmatic, solution-oriented nation. Furthermore, Switzerland's high cost of living, second to only Singapore in our sample (100 percent vs. 107 percent respectively), offsets the attractiveness of higher average wages. Additionally, NGO activism and pressure from regulators on taxation are concerns for industry participants (for example, Corporate Tax Reform III). Some of the ongoing initiatives—such as the Responsible Business Initiative, where a company is required to prove it was not in control of the activities of its subsidiaries and subcontractors—are perceived as a significant increase in regulatory scrutiny because of the reversal of burden-of-proof principles.

3.2.3. United Kingdom

Based on the sub-dimensions, the UK has ranked within the top three hubs for Competitiveness consistently over the years, due to its high ranking in governmental stability, tolerance of foreign ownership, legal environment, and anti-corruption metrics. However, the consequences of current Brexit negotiations remain unclear and may negatively impact its current policy stability and overall competitiveness. Interviews with stakeholders from the UK point to a potential outcome of a so-called 'hard Brexit,' namely greater deregulation and decreases in tax rates and other legislative changes, which in turn may increase its competitiveness. However, this is still seen as a low probability.

Overall, the UK is seen as a business-friendly environment, especially for multinational companies, due to the low barriers to entry and openness to foreign ownership, according to WEF. It also offers good access to a skilled workforce thanks to its world-class education system and strong presence of commodity traders and financial institutions. From the private-sector's perspective, the UK has an especially well-developed skill set required for asset-backed traders, ranging from front-office traders with strong financial-services backgrounds to corporate governance excellence and regulatory and public relations specialists.

3.2.4. United States

Based on the WEF Competitiveness Index, the factors that differentiate the US are its market size and the availability of financial services. Additionally, it is perceived as attractive for talent due to its high average wages, second only to Switzerland, and relatively high quality of life. At the same time, its leading education and training opportunities produce a skilled workforce. The ability to deduct taxes, depending on state laws, and other possible deductions (such as tax-deferred 401K plans), increases the flexibility of employees in terms of private-income taxation. Furthermore, the US is differentiated, according to the WEF, by its highly ranked financial-services industry and ability to foster innovation.

3.2.5. Singapore

Singapore ranks second to Switzerland in competitiveness, according to WEF, driven by government and political stability and high standards of regulatory control. Its low corporate income taxes and leading education and training system strengthen Singapore's high rank.

One of the key competitive differentiators of Singapore is its Global Trader Program (GTP). The GTP was launched in 2011 by International Enterprise Singapore – a government agency that promotes international trade and partners – as part of an ongoing effort to make Singapore's commodities trading environment more conducive for international players. The GTP provides a reduced corporate tax rate of 5 percent on qualifying trading income (10 percent within first three years of qualification) (International Enterprise Singapore, 2017).

The effects of the GTP go beyond commodity trading, contributing also to Singapore's finance, logistics, and insurance sectors. Not only is the GTP creating a large number of jobs, it more importantly is creating a broad spectrum of high-quality jobs. This is likely to result in an increase in the quality of the domestic workforce across various functions, both in managerial and executive positions.

3.2.6. Dubai

Based on the selected metrics, Dubai has shown a steady positive development over the past years, mainly driven by an increase in foreign ownership, productivity, and technological readiness, along with the most attractive fiscal policy compared to the peer group.

According to the WEF, Dubai ranks high on flexible hiring and firing policies, making it easy for businesses to find or import needed skills, especially compared to its peers and their movement towards more restrictive employment legislation. Plus, the absence of personal income tax couple with the presence of significant corporate tax offsets for commodity traders are positives in terms of Dubai's competitiveness and its attractiveness to the private sector and employees.

3.3. C. Integrity and Environment

Integrity and environment is the third and final dimension of the benchmarking analysis. While the previous factors examined the hubs' rankings from a business and talent perspective, this last dimension assesses integrity and environmental sustainability on a stand-alone basis, without necessarily considering the economic impact of regulations.

Two key sub-dimensions were considered in the integrity and environment rankings (for details, please refer to Appendix D.3):

- Conduct (such as regulations on transparency, financial crime, and human rights), with publicly available metrics
- Number of public initiatives, initiated by the government, NGOs, the public, or industry on payments and financial flows, human rights, and the environment, which are not required by law but rather by public organizations or society

A range of perspectives on the potential trade-offs between competitiveness and regulation exists amongst market participants. For this report, an increase or a higher rating in any of the integrity and environment metrics has been assessed as a positive for the respective hub.

When it comes to matters of integrity and the environment, judgments are affected heavily by values, which vary widely between societies (and even among people within a society). This inherent subjectivity must be kept in mind in considering the metrics used.

General indices were selected to provide some perspectives on Integrity and Environment. It is important to recognize that some of the metrics are only proxies and have their limitations, meaning rankings should be treated with caution. For instance, some metrics such as working hours or worker's rights reflect conditions in all industries in a particular country, and not commodities trading specifically. They also do not capture the international aspect of global commodities trading. Rogue trading incidents (included as the closest proxy to financial crime and combined with the anti-money laundering index) is measured as an absolute number of incidents, and will be driven by the magnitude of a hub's financial-services sector as well as overall Integrity.

3.3.1. Current positioning of the hubs and recent developments

Figure 16 illustrates the available public metrics used for the assessment of the hubs. As stated earlier, the rankings are based on two sub-dimensions: conduct required by law (financial crime regulations) and the number of public initiatives originated by different groups of stakeholders, including industry, NGOs, and the government. The metrics may be imperfect, and the list of selected public initiatives may not be exhaustive, but they were chosen based on the reflected perception of the industry participants. Along with public initiatives, the integrity and environmental rankings are supported by the perception of the industry participants who were interviewed.

Based on the available public metrics, Switzerland currently ranks a narrow first in integrity and the environment. (See Figure 16.) This status is the result of the number of ongoing public initiatives, partially initiated by the private sector. (See Figure 19, Figure 20, and Figure 21 for details.) This position was corroborated in interviews, as well as in the commodity trading

compliance survey where participants highlighted the high level of NGO pressure in Switzerland.

But there is room for improvement in the area of financial crime, such as in the area of anti-money laundering (AML), according to the Basel AML Index. In interviews, asset-backed traders also noted that the UK has more stringent corporate governance requirements in comparison to Switzerland, a factor viewed as a positive by capital markets and other stakeholders. Based on the interviews, the UK and the US are perceived as leaders in financial crime regulations due to their post-crisis AML legislation.

Switzerland's narrow lead is mostly thanks to improvements in audit and reporting over the past years, based on the WEF Competitiveness Index, as well as a growing number of initiatives propelled by public activism. (See Figure 17.) Overall, the UK ranks second, driven by its strong health, safety, and environmental policies. (See Figure 22.)

Based on the metrics, Singapore ranks third, due to its strong position in conduct related to transparency, financial crime, and human rights (such as workers' rights and official working hours). In discussing commodity-trading compliance regulations, interviewees acknowledged the value of standards and regulations for security and safety, as well as quality of products (through high audit standards of product origination). However, they emphasized the need for coordinated regulation efforts across the hubs and the enforcement of a level playing field, so as not to distort competition. This is especially important, as flexibility of location may be greater in commodity trading than in other industries. The private sector has mentioned that a potential migration of activities between the hubs may take place under the radar, where parts of the operation would be shifted without moving headquarters.

Figure 16: Current positioning of the hubs for dimension C. Integrity and Environment

	Conduct							Public initiatives						
	Transparency			Financial crime		Human rights		By NGOs, public or government			By industry			
2016	Audit and reporting	Human Rights policies	HSE policies	AML	Rogue trading	Working hours	Workers' rights	Payments	Human Rights	Environ-ment	Payments	Human Rights	Environ-ment	Final ranking
1														
2														
3														
Comment														
	WEF Index (0-7/low-high)	% of fulfilment	Average placement HSE policies[1]	Basel AML Index (0-low risk, 10-high risk)	Number of cases out of Top 50 cases by trading loss[2]	# working hours per week[3]	ITUC working rights index (6-break of rule of law, 1-irregular violations)	High/med./ low	High/med./ low	High/med./ low	High/med./ low	High/med./ low	High/med./ low	
	2 6.2	1 96%	2 1.3	5.8	3 3.0	2 54.0	1 2.0	1 high	1 high	1 high	1 high	1 medium	1 medium	
	3 6.0	2 95%	1 1.0	1 4.8	5.0	1 48.0	3 4.0	2 medium	1 high	2 medium	2 medium	1 medium	1 medium	
	5.8	3 89%	4.3	3 5.2	17.0	1 48.0	3 4.0	2 medium	2 medium	3 low	3 low	1 medium	1 medium	
	1 6.3	51%	3 3.0	2 4.9	2 1.0	1 48.0	2 3.0	3 low	3 low	2 medium	3 low	2 low	1 medium	
	5.6	20%	4.0	6.3	1 0.0	1 48.0	5.0	3 low	3 low	3 low	3 low	2 low	2 low	

1. Deep-dives on underlying data and sub-metrics provided
2. Cumulative by respective year
3. Based on maximum number of working days per week and maximum number of hours per day

Sources: (IMF, 2017), (WEF, 2016), (Freedom House, 2017), (International Labour Organization, 2017), (Basel Institute on Governance, 2017), (Transparency International, 2016), (Institute For Economics And Peace, 2016), (World Bank, 2017), (OECD, 2017), (ITUC, 2017), (Singapore's Ministry of Manpower, 2016), (EITI, 2017), (RCS Global, 2015), (McNeil & Drye, 2013), (Public Eye, 2017), (Bread for all, 2017), (Oliver Wyman proprietary data and analysis, 2017)

Figure 16 illustrates the comparison of public initiatives among the hubs, which was based on a quantitative analysis of the number of initiatives per hub. The selected initiatives do not represent an exhaustive list of all initiatives related to transparency on payments and financial flows, human rights, and environment, but rather represent a sample of relevant initiatives for the commodity trading industry. (See Figure 19, Figure 20, and Figure 21.) The list is derived from research and on stakeholders' remarks (private sector players, NGOs, and government representatives). The ranking of high/medium/low was based on the number of initiatives launched before or in 2011 per hub for the 2011 ranking and on the cumulative number of initiatives, for the rankings in 2016. This methodology is imperfect, as it does not take into consideration whether the initiatives were successfully completed and that the reduced number of current initiatives may be indicative of a greater level of integrity. The results of our rankings were validated top-down by the different stakeholder groups in interviews, where participants perceived the pressure of NGOs as being the highest in Switzerland. Based on this, we assume that this methodological issue is not significant for the peer hubs.

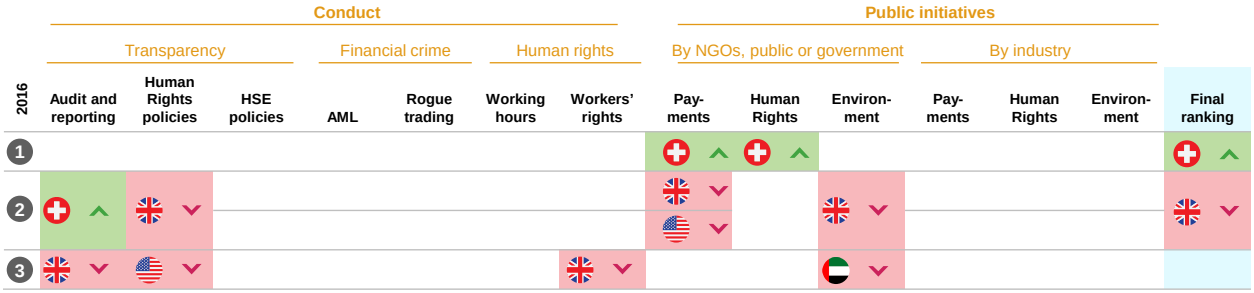
The UK decreased from first place in 2011 to second in 2016. (See Figure 17.) This is partly the result of the rapid advancement of other hubs and the UK's own slight decrease in selected metrics, such as human rights policies (as per Freedom House data). At the same time, Switzerland has increased its score in the WEF Competitiveness index on strength of auditing and reporting standards, from 5.6 in 2011 to 6.2 in 2016, taking second place after Singapore.

According to Freedom House data, all the hubs with the exception of Singapore have seen a decrease in their human rights policies score, which represents the rating for political rights and civil liberties derived from the Universal Declaration of Human Rights. Switzerland, the US, and the UK scored 100 percent in human rights fulfillment in 2011, whereas in 2016 that declined to 96 percent, 95 percent, and 89 percent, respectively.

Additionally, the International Trade Union Confederation cut the workers' rights index for the UK from 3 (regular violations) to 4 (systemic violations) due to anti-union legislation, which passed in Parliament in May 2016.

Switzerland has seen a range of new initiatives launched, overtaking the UK and US in terms of ongoing work on these issues (as measured by number of initiatives).

Figure 17: Recent developments since 2011 for dimension C. Integrity and Environment

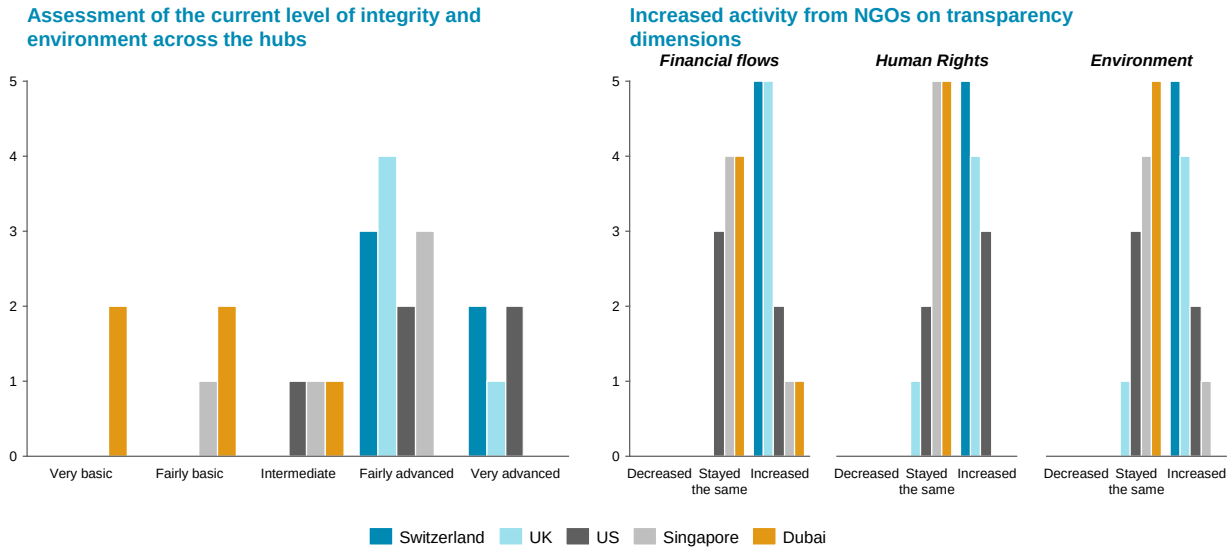


A recurring topic in interviews was the growing level of public activism and initiatives related to integrity and environment. To gain insight into companies' perceptions of the importance and impact of integrity and environment, an anonymous survey was conducted with commodity trading companies with a global footprint. The objectives of the survey were to see how commodity traders perceive the level of integrity and environment by hub and its importance in comparison to economic factors and competitiveness. The survey was split into three main parts:

- Public activism and initiatives perceived by the commodity traders
- Initiatives of the commodity traders
- Classification of the commodity traders, as per self-characterization

Overall, respondents rated Switzerland's level of integrity and environment as the most advanced among the hubs, with the UK and Singapore placing second. This result was aligned with the analysis of the number of public initiatives for Switzerland and the UK. Singapore's placement may be driven by stricter audit and reporting regulations and financial crime. (See Figure 18.)

Figure 18: Compliance survey: key results (in number of responses)



Source: (Oliver Wyman proprietary data and analysis, 2017)

Commodity traders also confirmed the impression of an increase in activity by regulators and NGOs in Switzerland across all three dimensions: payments and financial flows, human rights, and environment. The responses on the UK were more mixed, with a tendency towards increased activity. Activity in the US, Singapore, and Dubai was seen as stable (with no sign of increased pressure from regulators and NGOs). At the same time, no decrease in activity from regulators and NGOs was observed in any of the hubs.

Selected participants indicated their standards would remain at the highest level irrespective of the geographic footprint of the company or the location of its headquarters. Relocation would be more influenced by the cost of conducting business, as well as the ability to recruit and retain the highest quality talent.

All the surveyed companies pointed to their memberships in multi-stakeholder initiatives related to human rights. A large majority is involved in initiatives concerning payments and financial flows, and the environment. The initiatives mentioned included EITI, Ruggie, International Labour Organization, UN Global Compact, World Business Council for Sustainable Development (WBCSD), Roundtable for Sustainable Palm Oil (RSPO), Sustainable Agriculture Initiative (SAI) Platform, and The Forest Trust (TFT).

In terms of industry-led initiatives, all the companies surveyed except for one provide corporate responsibility disclosure reporting on similar dimensions to the metrics used in the study (payments and financial flows, human rights, and environment). Additionally, two companies have stated during interviews that they would introduce Corporate Social Responsibility reporting in their next reporting cycle. The companies said that the benefits derived from disclosure justified the costs of reporting. The one company that does not provide a corporate responsibility disclosure report said it was not applicable to its business model.

3.3.2. Switzerland

Based on the available public metrics and a count of public initiatives, Switzerland ranks a narrow first in the category of integrity and environment. Overall, Switzerland excelled in audit and reporting, public initiatives, financial transparency, human rights, and the environment; it also showed improvement in the AML metric.

Switzerland demonstrates strong financial market oversight, which has an impact on the frequency of financial crimes and it has strong workers' rights policies, according to the International Trade Union Confederation. It is also differentiated by the integrity and environmental initiatives/regulations in place. Additionally, the Financial Action Task Force (FATF) identified that Switzerland has undertaken major initiatives to limit banking secrecy and proactively combat tax evasion over the last few years. The long-term effects of these measures will encourage greater anti-money laundering and counterterrorist financing effectiveness.

In comparison to other countries, Switzerland was rated higher on effectiveness, ranging from moderate to substantial, while other countries that scored high on technical compliance were assigned a 'low' rating for effectiveness in specific areas, such as the investigation and prosecution of terrorism financing, as per Mutual Evaluation reports. The report also highlighted that clear progress has been made concerning FINMA controls and in raising the awareness of institutions to and their role in the prevention of money laundering and terrorist financing in the past years (FATF, 2016).

Considering the methodology described in Chapter 3.3.1 and based on the initiatives, Switzerland has advanced significantly in terms of number of public initiatives in the past years. (See Figure 19, Figure 20 and Figure 21.) It has introduced seven to eight initiatives along the dimensions of payments and financial flows, human rights, and the environment, the highest level compared to other hubs.

Some of the initiatives do not primarily focus on commodity trading but rather on extraction and production activities. The differences in the supply-chain steps are especially relevant in the context of integrity and environmental initiatives and the increasing efforts around the transparency requirements. Based on interviews, commodity traders agree in principle on the need to conduct due diligence efforts but say that conducting a thorough due diligence process may not be possible in some instances, especially in spot markets where the process would be led by asset owners.

Following the increase in the number of initiatives led by the government or NGOs, the private sector is responding with an increased number of industry-led initiatives on integrity and environment: Swiss-based commodity traders make sustainability and compliance disclosure reports on both listed companies as well as on small and medium-size enterprises. This will be covered in greater detail in Chapter 4.3.3.

It is important to note that the increase in number of public initiatives over the past years is seen as a journey of continuous improvement efforts, and some stakeholders still see significant potential to continue this journey (further details are in Appendix C Recurring topics from interviews). Many interviewees also suggested that the natural tensions arising between the private sector and NGOs might be best addressed by the government in a proactive manner.

Figure 19: Selected public initiatives on business integrity and anti-corruption

Hub	Selected initiatives	Launch	Σ
Switzerland	• UN Guiding Principles on Business and Human Rights • OECD Guidelines for Multinational Enterprises • OECD Responsible Business Conduct in the Financial Sector • Background Report on Commodities of the Federal Council • Transparency directives of the Federal Council in line with EU directives • CSR Position Paper (specifically, A.1.17, A.1.19 and B.2.10) • National Action Plan to implement UN Guiding Principles on Business and Human Rights (specifically, A.1.18 and A.1.2) • Public Eye's reports and campaigns on Swiss traders and financial flows, e.g. Gunvor in Congo • National initiative, e.g. No Speculation on Food • Swiss national legislation ('Criminal penalties for corruption') • Supporting country of EITI Standards and initiator of a multi-stakeholder working group on EITI and commodity trading	Before or in 2011: After 2011: ***Total:***	3 8 ***11***
UK	• UN Guiding Principles on Business and Human Rights • OECD Guidelines for Multinational Enterprises • OECD Responsible Business Conduct in the Financial Sector • EU Accounting and Transparency directives • UK Open Government National Action Plan 2016-18 • UK Bribery Act • Member of EITI	Before or in 2011: After 2011: ***Total:***	4 3 ***7***
USA	• UN Guiding Principles on Business and Human Rights • OECD Guidelines for Multinational Enterprises • OECD Responsible Business Conduct in the Financial Sector • US Dodd-Frank • US National Action Plan to promote responsible and transparent business conduct overseas • Open Government Partnership (OGP) national action plan • Supporting country of EITI Standards (withdrew as a member in November 2017)	Before or in 2011: After 2011: ***Total:***	4 3 ***7***

Hub	Selected initiatives	Launch	Σ
Singapore	• UN Guiding Principles on Business and Human Rights	Before or in 2011:	1
		After 2011:	0
		Total:	***1***
Dubai	• UN Guiding Principles on Business and Human Rights	Before or in 2011:	1
		After 2011:	0
		Total:	***1***

Figure 20: Human rights initiatives

Hub	Selected initiatives	Launch	Σ
Switzerland	• UN Guiding Principles on Business and Human Rights • OECD Due Diligence Disclosure Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas • OECD Due Diligence Guidance for Meaningful Stakeholder Engagement in the Extractive Sector • FAO-OECD Guidance for Responsible Agricultural Supply Chains • National Action Plan to implement UN Guiding Principles on Business and Human Rights • Background Report on Commodities of the Federal Council (Recommendation Nr. 11) • International Code of Conduct for Private Security Service Providers (ICoC) • Voluntary Principles on Security and Human Rights • Kimberley Process Certification Scheme • National Action Plan on Business and Human Rights • National initiatives, e.g. Responsible Business Initiative • FDFA Human Rights strategy	Before or in 2011: After 2011: ***Total:***	5 7 ***12***
UK	• UN Guiding Principles on Business and Human Rights • OECD Due Diligence Disclosure Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas • OECD Due Diligence Guidance for Meaningful Stakeholder Engagement in the Extractive Sector • FAO-OECD Guidance for Responsible Agricultural Supply Chains • International Code of Conduct for Private Security Service Providers (ICoC) • Voluntary Principles on Security and Human Rights • Kimberley Process Certification Scheme • EU Convention on Human Rights • EU Human Rights disclosure requirements • Overseas Business Risk Service • Modern Slavery Bill • Declaration on Fundamental Principles and Rights at Work • Legal Aid, Sentencing and Punishment of Offenders Act 2012 • Institute for Human Rights and Business with focus on commodities • EU Conflict Mineral Regulations (expected to start in 2021, i.e. Brexit implications yet unclear)	Before or in 2011: After 2011: ***Total:***	9 5 ***14***

Hub	Selected initiatives	Launch	Σ
USA	• UN Guiding Principles on Business and Human Rights • OECD Due Diligence Disclosure Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas • OECD Due Diligence Guidance for Meaningful Stakeholder Engagement in the Extractive Sector • FAO-OECD Guidance for Responsible Agricultural Supply Chains • International Code of Conduct for Private Security Service Providers (ICoC) • Voluntary Principles on Security and Human Rights • Kimberley Process Certification Scheme	Before or in 2011: After 2011: ***Total:***	5 2 ***7***
Singapore	• UN Guiding Principles on Business and Human Rights • Kimberley Process Certification Scheme • Inter-Agency TIP (trafficking-in-persons) Taskforce	Before or in 2011: After 2011: ***Total:***	3 0 ***3***
Dubai	• UN Guiding Principles on Business and Human Rights • Kimberley Process Certification Scheme • UAE Vision 2021	Before or in 2011: After 2011: ***Total:***	3 0 ***3***

Figure 21: Environmental initiatives

Hub	Selected initiatives	Launch	Σ
Switzerland	• OECD Common Approaches for Environmental and Social Due Diligence • Kyoto Protocol • Paris Agreement • FAO-OECD Guidance for Responsible Agricultural Supply Chains • International Resource Panel of the United Nations Environment Panel • National initiatives, e.g. Better Gold • Cantonal Agenda 21 action plan • Agricultural initiatives by NGOs, e.g. Bread for all campaign 'Land Grabbing' • Green Economy Action Plan and Report on Green Economy 2016 • Swiss Biodiversity Strategy • Environmental Protection Act • National Strategy for Adaptation to Climate Change	Before or in 2011: After 2011: ***Total:***	4 8 ***12***
UK	• OECD Common Approaches for Environmental and Social Due Diligence • Kyoto Protocol • Paris Agreement • FAO-OECD Guidance for Responsible Agricultural Supply Chains • International Resource Panel of the United Nations Environment Panel • 2008 Climate Change Act • UK Renewable Energy Roadmap • Green shipping initiative: Shipping in Changing Climates (by UCL)	Before or in 2011: After 2011: ***Total:***	4 4 ***8***

Hub	Selected initiatives	Launch	Σ
USA	• OECD Common Approaches for Environmental and Social Due Diligence • National agricultural initiatives, e.g. Field to Market • FAO-OECD Guidance for Responsible Agricultural Supply Chains • International Resource Panel of the United Nations Environment Panel • Withdrew from the Paris Agreement in June 2017	Before or in 2011: After 2011: ***Total:***	2 2 ***4***
Singapore	• Kyoto Protocol • Paris Agreement • Maritime Singapore Green Initiative incl. Green Ship Programme, Green Port Programme, Green Technology Programme, Green Awareness Programme, Green Energy Programme • Clean and Green Singapore / Energy Efficiency Singapore / Sustainable Singapore • Singapore Government Funding and Incentives for the Environment	Before or in 2011: After 2011: ***Total:***	2 3 ***5***
Dubai	• Kyoto Protocol • Paris Agreement • UAE Environment Vision 2021 and National Agenda	Before or in 2011: After 2011: ***Total:***	2 1 ***3***

Finally, Switzerland has more rigorous health, safety, and environmental policies, second only to the UK, which has signed a consequently higher number of conventions since 2011. (See Figure 22.)

Figure 22: Health, safety, and environmental policies by hub, as of 2016

HSE policies
# of ILO conventions, 2016

	Fundamental conventions[1]	Governance conventions[2]	Technical conventions[3]
	8	3	49
	8	3	76
	2	1	11
	6	2	19
	6	1	2

Ranks per convention types and final metric ranking methodology

	Fundamental conventions[1]	Governance conventions[2]	Technical conventions[3]	Average placement	Final rank for HSE policies
	1	1	2	1.3	2
	1	1	1	1.0	1
	5	4	4	4.3	5
	3	3	3	3.0	3
	3	4	5	4.0	4

1.Total of 8 fundamental conventions covering core principles and rights at work (freedom of association, right to collective bargaining, elimination of forced labour, abolition of child labour, elimination of discriminations)
2. Total of 4 governance conventions related to international labour standards systems, such as labour inspection and employment policy conventions
3. Total of 177 technical conventions, focusing on specific issues related to labour, e.g. night working convention or chemicals convention

Source: (International Labour Organization, 2017)

While statistics on working hours in the commodity trading industry are not available, Switzerland has the longest working hours across industries, based on World Bank data. A key concern in terms of financial crime continues to be anti-money laundering (per the Basel AML Index).

3.3.3. United Kingdom

The UK ranks a close second in the identified metrics, with high rankings for its human rights and financial market oversight. In the aftermath of the financial crisis, the UK intensified its regulatory efforts, calling for greater transparency. It has the highest rating for AML regulation, based on the Basel AML Index, which raised the UK's rankings in the integrity and environment category.

Historically, the UK has had a larger number of initiatives underway, especially concerning human rights. However, the EU has helped drive those initiatives and, post-Brexit, it is unclear whether the UK will continue to align itself with the EU on such efforts. Indeed, UK-based stakeholders state Brexit negotiations have been taking up most of the political attention, thus reducing or putting on hold activity in other areas. (See Figure 19, Figure 20, and Figure 21.)

The UK's engagement in the Extractive Industries Transparency Initiative (EITI), the Organization for Economic Co-operation and Development (OECD) directives related to human rights and the environment, and its commitment to technical conventions strengthen the UK's high ranking. (See Figure 22.)

3.3.4. United States

The US has relatively strict regulations in the wake of the financial crisis. It raised its ranking in audit and reporting based on the WEF's Competitiveness Index, driven by the SEC Enforcement Division's Financial Reporting and Audit (FRAud) Group efforts to identify fraudulent financial reporting and securities law violations in financial statements.

Historically, the US has had a relatively high number of public initiatives related to business integrity and anti-corruption, as well as human rights. However, it recently exited several key international agreements and initiatives, such as the Paris Climate Accord in June 2017 and EITI membership in November 2017. (See Figure 19, Figure 20, and Figure 21.)

3.3.5. Singapore

Singapore has made significant strides in financial market oversight and is ranked high in the category of audit and reporting by the WEF as well as in its AML efforts, according to the Basel AML Index. In the area of human rights, Singapore managed to rise from 36 percent fulfillment in 2011 to 51 percent in 2016, according to Freedom House (Freedom House, 2017).

Singapore has been investing in environmental initiatives, raising its grade in that area; meanwhile, efforts related to payments and financial flows and human rights have been driven by large international multi-stakeholder initiatives, such as UN Guiding Principles on Business and Human Rights and Kimberley Process Certification Scheme. (See Figure 19, Figure 20, and Figure 21.)

These efforts contributed to Singapore's third place in the integrity and environment dimension.

3.3.6. Dubai

Compared to its peers, Dubai's overall ranking in the dimension of integrity and environment is based on developments in the financial sector over the past years. In 2015, the UAE introduced anti-money laundering (AML) and combating terrorism financing (CTF) regulation, with the goal of aligning its policies with the OECD's Financial Action Task Force's Recommendations (FATF Recommendations) (Clifford Chance, 2015). In 2016, the UAE had further aligned itself with international regulatory frameworks, such as IFRS9 and Basel III (Al Ghurair, 2017).

In terms of its activity in public initiatives, Dubai has developed along the lines of Singapore, predominantly driven by large international multi-stakeholder initiatives. (See Figure 19, Figure 20, and Figure 21.)

4. Existing and emerging trends

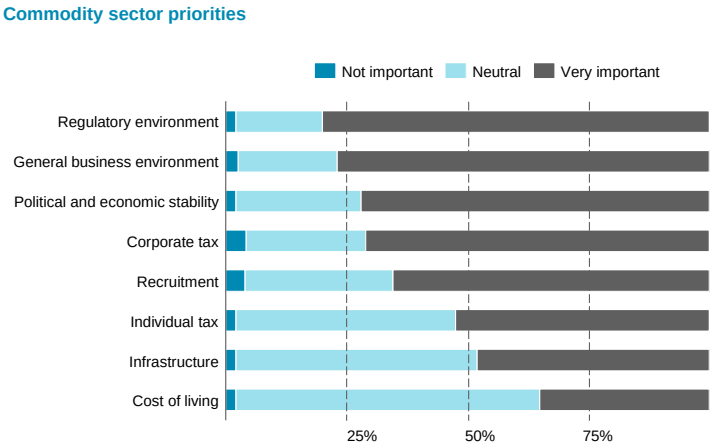
In this chapter, we examine a number of existing and emerging trends across the three key dimensions. The impact of each trend on the hubs is an estimate – a precise quantification of the impact, as well as the change in overall ranking, is excluded from our analysis.

Based on emerging trends, Switzerland is expected to be affected negatively, and potentially could lose its leading positioning to Singapore or the US. (See Figure 23.) At the same time, the UK and Dubai are expected to remain stable.

Figure 23: Existing and emerging trends and their potential impact on the hubs

The impact of the emerging trends needs to be considered in the context of the commodity trading sector's priorities. (See Figure 24.) The sector's top five priorities are regulation, general business environment, political stability, corporate tax, and recruitment, according to a study by STSA (Eggert & Ferro-Luzzi, 2017). Additionally, individual income tax, infrastructure, and cost of living are high up on the list, which interviews confirm are important factors in location choice.

Figure 24: Commodity trading sector priorities



Source: (Eggert & Ferro-Luzzi, 2017)

4.1. Economic Factors

In terms of economic factors, we see three key trends having an impact on the future positioning of the commodity-trading hubs:

- Shifting volumes towards Asia
- Emerging new commodities
- Expanding footprint by commodity traders

4.1.1. Continuous shift of volumes towards Asia

Given the surge in demand for commodities in Asia, Singapore is growing rapidly. There has been an expansion in production and consumption across almost all commodity asset classes, except for the production and consumption of coal and the consumption of precious metals. The annual growth rate (CAGR) in the Asia Pacific region is higher overall than in the rest of the world. (See Figure 25.)

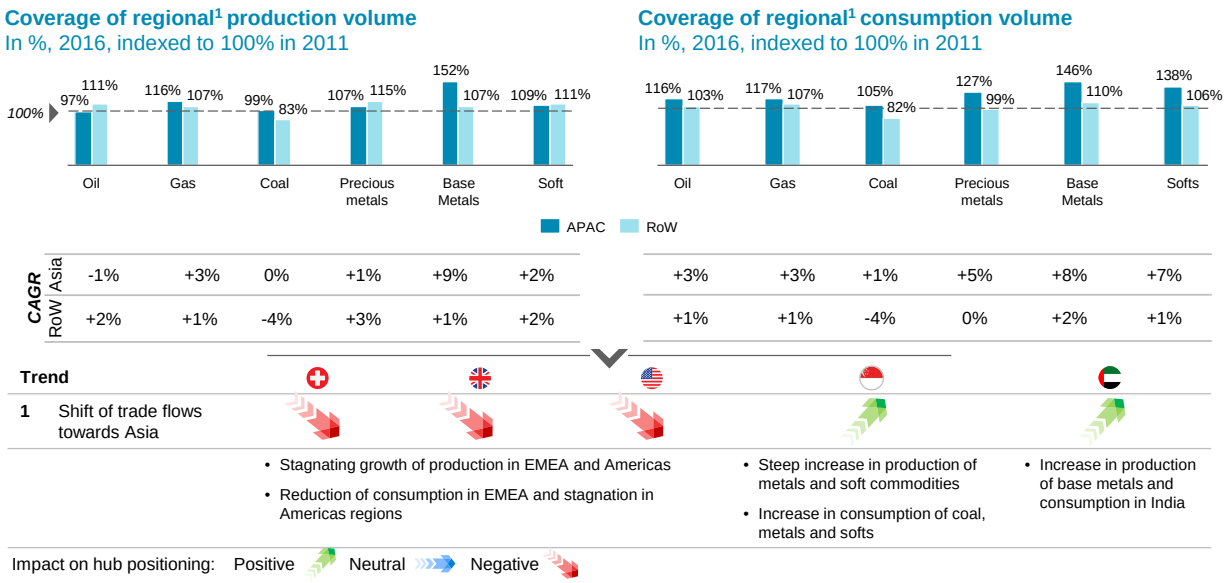
While Singapore has benefited most from Asia's surge in growth and voracious appetite for commodities, it is not the only hub to have benefitted from that wave. Out of the other peer hubs, Dubai stands out from the rest:

- Dubai has grown consistently in terms of coverage of regional production volume (value in US$) across all asset classes, while Switzerland, the UK, and the US have seen volumes drop. (See Figure 26.)
- Dubai has seen an increase in regional demand and consumption across different asset classes, while a reduction is visible for the regions covered by Switzerland, the UK, and the US. (See Figure 27.)

Some of the interviewees said that there are emerging markets to be covered from every region, such as Africa from the EMEA, Central and South America from the Americas, and China and

Indonesia from the Asia Pacific. However, the production and consumption of specific commodity asset classes may differ among the regions. Therefore, commodity traders need to be flexible and focus on connecting the origination and consumption regions in the most efficient manner.

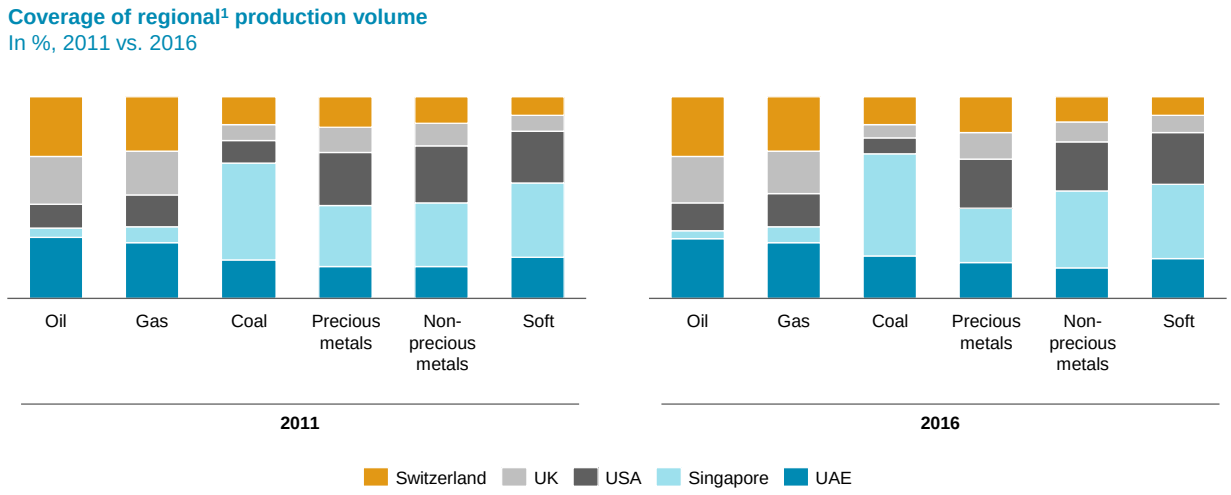
Figure 25: Coverage of regional production and consumption volumes by hub



For Switzerland and UK: Europe and Eurasia, Middle East and Africa; for US: North, Central and South Americas, for UAE: Europe and Eurasia, Middle East, Africa and India; for Singapore: APAC incl. India
Note: Oil includes crude oil, shale oil, oil sands and NGLs (natural gas liquids); gas includes natural gas produced for Gas-to-Liquids transformation; non-precious metals include aluminium, copper, iron ore, lead, nickel, tin and zinc; precious metals include gold, platinum, silver; softs include bananas, cocoa, coconut, palm kernel oil, coffee, cotton, maize, natural rubber, soybean oil, rice, soybeans, sugar, tea and wood pulp

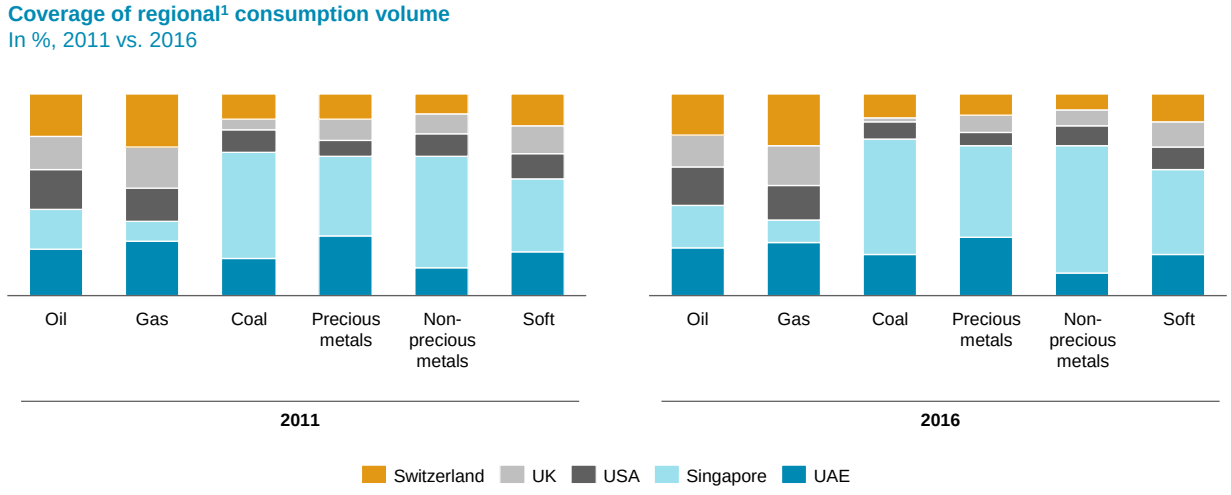
Source: (BP, 2017), (World Bank, 2017), (Oliver Wyman proprietary data and analysis, 2017)

Figure 26: Production volumes 2011 vs. 2016



1. Regional split as follows: Switzerland: Europe and Eurasia, Middle East and Africa; UK: Europe, Eurasia excl. Kazakhstan, Pakistan, Turkmenistan, Uzbekistan, plus Middle East excl. Iran and Iraq, plus Africa; US: North, Central and South Americas, for UAE: Europe and Eurasia, Middle East, Africa and India; for Singapore: APAC incl. India
Note: Oil includes crude oil, shale oil, oil sands and NGLs (natural gas liquids); gas includes natural gas produced for Gas-to-Liquids transformation; non-precious metals include aluminium, copper, iron ore, lead, nickel, tin and zinc; precious metals include gold, platinum, silver; softs include bananas, cocoa, coconut, palm kernel oil, coffee, cotton, maize, natural rubber, soybean oil, rice, soybeans, sugar, tea and wood pulp

Figure 27: Consumption volumes 2011 vs. 2016



1. Regional split as follows: Switzerland: Europe and Eurasia, Middle East and Africa; UK: Europe, Eurasia excl. Kazakhstan, Pakistan, Turkmenistan, Uzbekistan, plus Middle East excl. Iran and Iraq, plus Africa; US: North, Central and South Americas, for UAE: Europe and Eurasia, Middle East, Africa and India; for Singapore: APAC incl. India
Note: Oil includes crude oil, shale oil, oil sands and NGLs (natural gas liquids); gas includes natural gas produced for Gas-to-Liquids transformation; non-precious metals include aluminium, copper, iron ore, lead, nickel, tin and zinc; precious metals include gold, platinum, silver; softs include bananas, cocoa, coconut, palm kernel oil, coffee, cotton, maize, natural rubber, soybean oil, rice, soybeans, sugar, tea and wood pulp

Source: (BP, 2017), (World Bank, 2017), (Oliver Wyman proprietary data and analysis, 2017)

4.1.2. New commodity classes

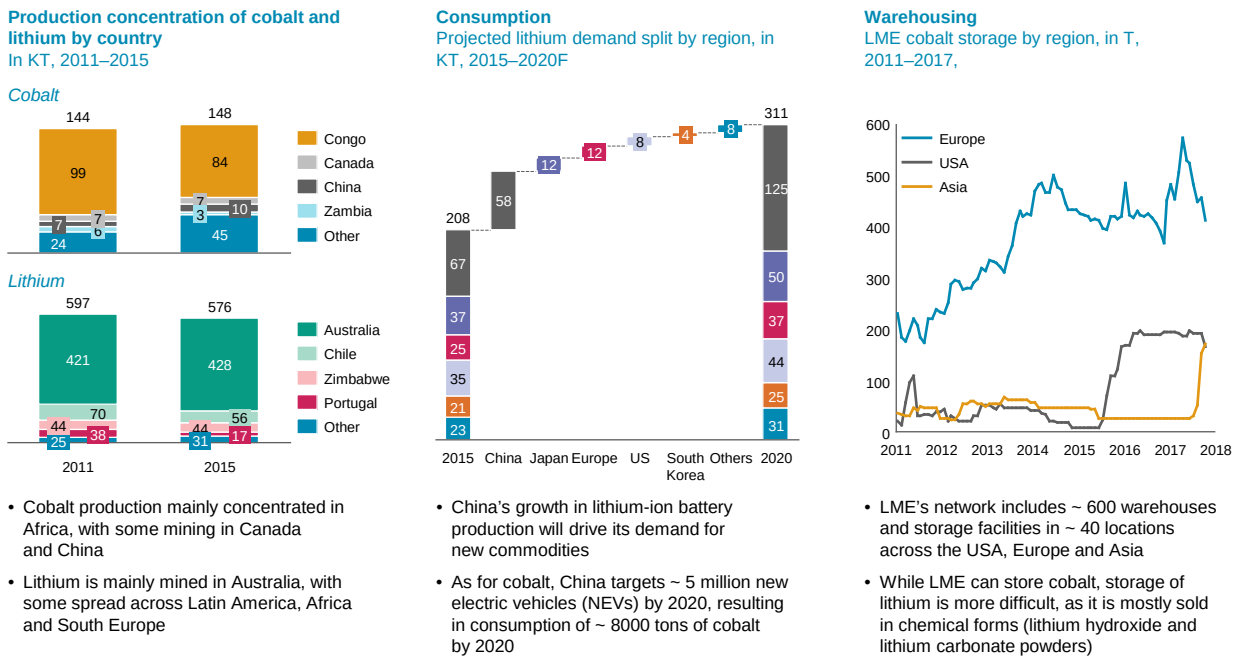
The trend towards clean energy and electric vehicles is changing behavior and reshaping traditional commodities markets. As new commodities emerge, hubs and commodity trading firms with a focus on traditional asset classes will need to reposition themselves to be able to benefit from new opportunities. Developments in cobalt and lithium (and other possible scenarios) are examined here.

Demand for lithium and cobalt is projected to increase exponentially over the coming years, opening up new opportunities for trading hubs. (See Figure 28.) The expected rise in the new commodities can be monetized by:

- Proximity to production, benefitting hubs covering Congo, Australia, Chile, Zimbabwe, and Portugal
- Proximity to consumption, driven by China's growth and benefitting Singapore as a hub
- Warehousing capacities and trading infrastructure, such as via the London Metal Exchange (LME)

While market infrastructure for cobalt is based for the most part in the UK – the London Metal Exchange being the sole exchange that lists cobalt – the trader population is spread globally. (See Figure 29.)

Figure 28: Production, consumption, and warehousing of emerging new commodities



- Cobalt production mainly concentrated in Africa, with some mining in Canada and China
- Lithium is mainly mined in Australia, with some spread across Latin America, Africa and South Europe

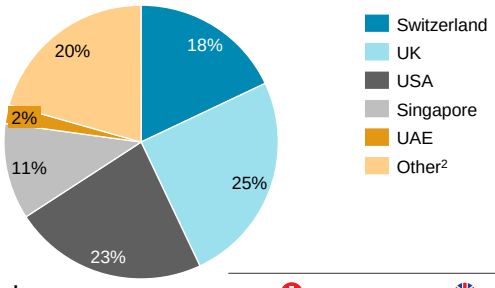
- China's growth in lithium-ion battery production will drive its demand for new commodities
- As for cobalt, China targets ~ 5 million new electric vehicles (NEVs) by 2020, resulting in consumption of ~ 8000 tons of cobalt by 2020

- LME's network includes ~ 600 warehouses and storage facilities in ~ 40 locations across the USA, Europe and Asia
- While LME can store cobalt, storage of lithium is more difficult, as it is mostly sold in chemical forms (lithium hydroxide and lithium carbonate powders)

Source: (British Geological Survey's Centre for Sustainable Mineral Development, 2017), (CRU, 2017), (Oliver Wyman proprietary data and analysis, 2017)

Figure 29: Split of cobalt traders by hub

Split of cobalt traders and distributors by hub[1]
In # traders, 2017



Commentary

- Cobalt is traded exclusively on London Metal Exchange (LME) in future contracts with turnover increasing over the past five years
  - 2016: ~ 8000 lots
  - 2011: ~ 6600 lots
- On the contrary, physical trading of lithium is not exchange-based yet due to challenges with storage, as it is usually sold in powder form

	Trend					
2	Emerging new commodities, such as lithium and cobalt	• Low access to production, consumption and midstream • However, high presence of metals traders	• Developed market highest presence of traders	• Benefit from Canada's and Chile's production • Increasing push production (e.g. Tesla)	• Strong growth of China's demand for expansion into supply	• Coverage of both Africa's and Asia's demand and supply – however, and decrease in Middle East importance

Based on LME cobalt traders and distributors industry participants
Includes Sweden, Italy, Belgium, China, Japan, India
Source: LME, Oliver Wyman analysis

Impact on hub positioning: Positive Neutral Negative

Source: (LME, 2017), (Oliver Wyman proprietary data and analysis, 2017)

Looking ahead, we see three scenarios in which London, Singapore, and Switzerland could benefit from emerging new commodities. (See Figure 30.)

Figure 30: How hubs can benefit from emerging new commodities

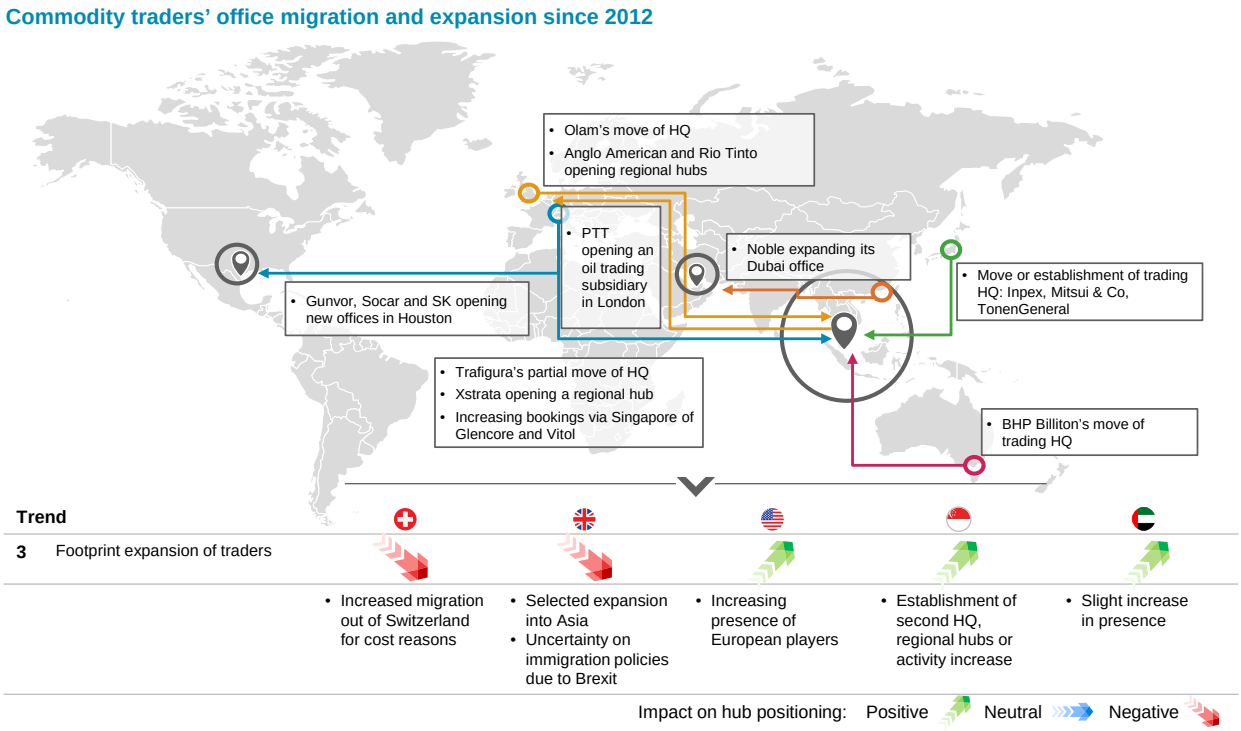
Scenario 1: London benefits from its market infrastructure	Scenario 2: Singapore benefits from its proximity to consumption	Scenario 3: Switzerland benefits from its presence of metals traders
✓ Leverage of LME's global network for trading and storage of emerging new commodities	✓ Steady growth in consumption due to increasing electric vehicles and battery production in China	✓ Leverage of existing high density of largest metal traders and traded volumes
✓ Expansion of storage ability to cover lithium on top of cobalt and other metals already being offered	✓ Further advancement of midstream facilities and proximity to other regional ports as well as to mining, e.g. Australia	✓ Leverage of time zone location and ability to connect production and consumption points (Middle East, Africa, APAC and LatAm)
✓ Further development of metal traders density	✓ Regional market infrastructure development for price setting and liquidity, e.g. in Shanghai	✓ Proximity and easy access to LME
Requirements		
• Retaining of metal traders following Brexit	• Further development of regional metal trader community	• Sophistication of logistics and development of network to trade across time zones
• Maintenance of single/leading position for industrial metal trading and for setting global benchmarks	• Capacities to serve increasing consumption with its midstream facilities	• Retaining of existing metal traders and its volume market share
• Close collaboration with Chinese participants in LME's price-discovery process	• In order to benefit from Shanghai's market infrastructure, ease of Chinese capital controls (long-term)	

4.1.3. Footprint expansion of traders

In terms of geographic footprint, Singapore has seen the greatest expansion or relocation from worldwide hubs over the past years. (See Figure 31.) This development can be explained by several key factors:

- Proximity to physical assets in Asia: Commodity traders need to cover the time zone of respective operations/logistics if active in Asian regions
- Expanding Asian customer base: Traders must provide customer service and coverage from the same time zone
- Cost pressures: Driven by flattening margins, commodity traders are looking for cheaper locations in terms of labor, infrastructure, or control and regulatory cost

Figure 31: Commodity traders' office migration and expansion since 2012



Source: (Factiva, 2017), (Axpo, 2017), (Olam Group, 2017), (Anglo American, 2017), (Rio Tinto, 2017), (Noble Group, 2017), (Trafigura, 2017), (Grant & Blas, 2012), (PTT, 2017), (Reuters, 2017) (Oliver Wyman proprietary data and analysis, 2017)

It should be noted that more than 75 percent of the traders based in Switzerland are independent; their main activity is trading. (See Figure 32.) This is in contrast to the UK, which has a concentration of asset-backed commodity firms and banks, whose trading operations are often based in the same locale as the corporate parent. As a result, Switzerland is in greater danger of losing its position, because independent traders are more open to moving offices.

Figure 32: Core activity carried out by the group on a global basis for the commodity traders based in Switzerland

Core activity carried out by the group worldwide of the commodity traders based in Switzerland

Core activity	
Trading	75.4 %
Exploration and production	.0 %
Mining	.0 %
Warehousing and storage	.0 %
Processing and refining	4.9 %
Distribution	3.3 %
Inspection	1.6 %
Brokerage	4.9 %
Shipping and chartering	1.6 %
Commodity trade finance	8.2 %
Total (N)	**100 % (61)**

Source: (Eggert & Ferro-Luzzi, 2017)

4.2. Competitiveness

Three trends are impacting the future positioning of commodity-trading hubs in terms of competitiveness:

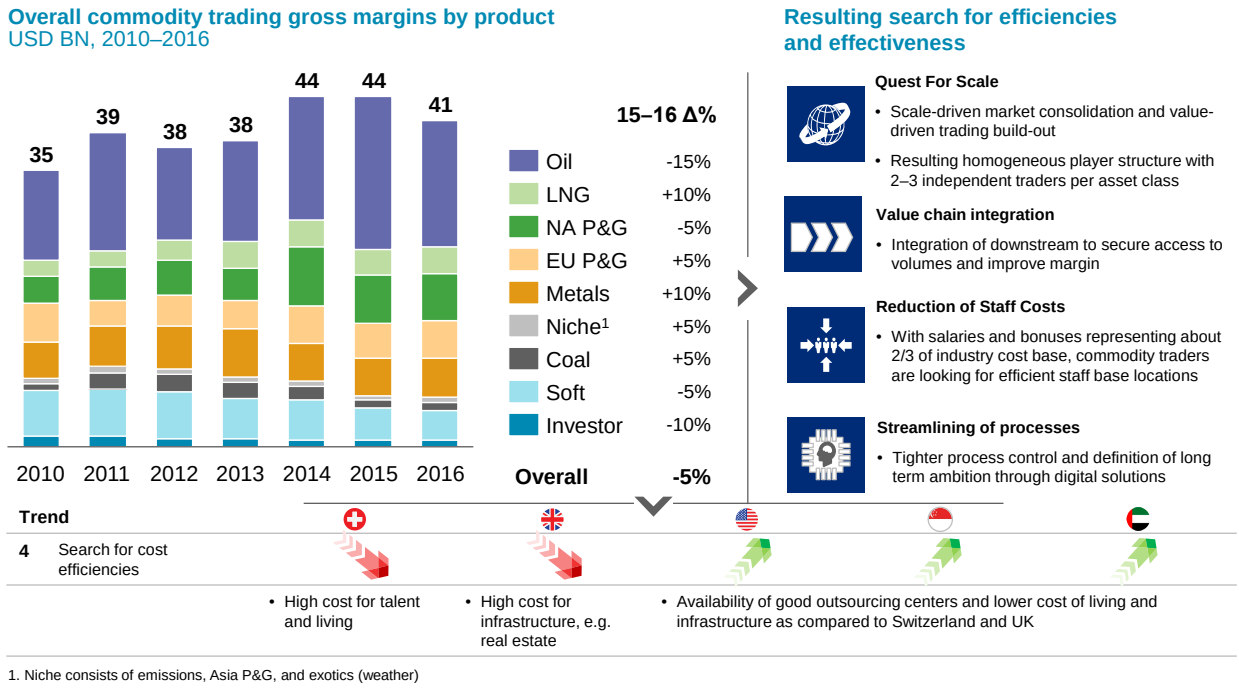
- Search for cost efficiencies
- Redistribution of global talent
- Advances in digitization

4.2.1. Search for cost efficiencies

Stagnating gross margins are forcing commodity traders to seek efficiencies and rethink their business models. For example, the trading gross margins in oil decreased by 15 percent between 2015 and 2016, while the global consumption of oil increased by 2 percent (BP, 2017). (See Figure 33.)

Interviews with industry players revealed a common concern with rising administrative costs, which are the result of greater regulation, compliance requirements, and controls. They highlighted the potential impact of ongoing initiatives in Switzerland on their business models. Additionally, some interviewees emphasized their concern with the lack of clarity and absence of any cost/benefit analysis of some regulations. Increasing cost pressures may lead to a migration to hubs that offer a more competitive cost structure. Traders, however, have to balance the need to contain costs against labor costs, an efficient and innovative environment, and a highly skilled workforce.

Figure 33: Stagnating commodity trading gross margin and the resulting search for efficiencies



1. Niche consists of emissions, Asia P&G, and exotics (weather)

Source: (Oliver Wyman proprietary data and analysis, 2017)

4.2.2. Redistribution of global talent

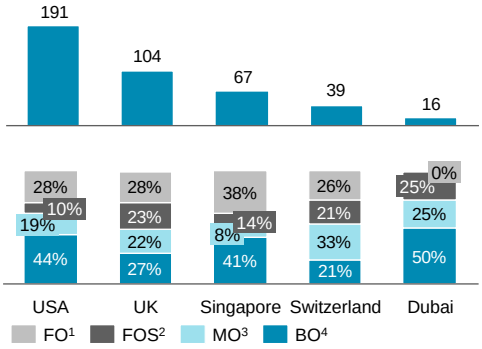
Historically, Switzerland has been a leading hub in terms of front-office functions, but has been less attractive for middle- and back-office operations, given the high cost of labor. Based on the analysis of current open positions, about 25 percent of the open positions in Switzerland are for front-office roles, while three other hubs – Singapore, US, and the UK – have a strong footprint of local open roles across all functions. (See Figure 34.)

Interviews with recruiters indicated that the UK is taking over the commercial roles that are moving out from Switzerland, a trend that is being driven by two factors:

- From an operational perspective, there is no clear advantage of Switzerland over the UK in terms of geographic location, time zone, or coverage of clients and partners
- The UK offers a lower cost of living and labor cost (attractive to companies with capped base salaries) and is more attractive to junior staff

Figure 34: Current position openings by location and organizational structure

Current position openings by location and org structure (as of Sep 2017)



Quotes from interviews with recruiters

- *"Switzerland has been experiencing a decreasing attractiveness in the past 12-18 months despite tax efficiency, driven by workforce being reluctant to relocate due to high cost of living (net gain by staying in UK), and companies having stricter upper level caps for base salaries."*
- *"UK is benefitting from low cost of living and decrease of trader population in Switzerland."*
- *"The US, especially South, is very attractive due to no state income taxes for individuals and has seen some migration of oil & gas players from the North."*
- *"Due to qualification requirements for Global Trader Programme and offered tax breaks, Singapore is fostering hiring of local staff – there is low migration of expats only on senior/expert levels."*
- *"While Dubai is very attractive for tax reasons, it is not attractive in terms of quality of life – there are mostly MO/BO functions represented."*

Trend					
5 Redistribution of global talent					
	• Decreasing attractiveness for talent due to high cost of living	• Migration of talent from Switzerland; high concent-ration of FO staff	• Large presence of both FO and BO functions	• Fostered build-up of local "new generation" of traders	• Suitable for MO/BO functions, but less for FO due to quality of life

1. Front office includes Sales 2. Front office support includes Business Development, Client Service 3. Middle office includes IT, engineering, legal 4. Back office includes Finance

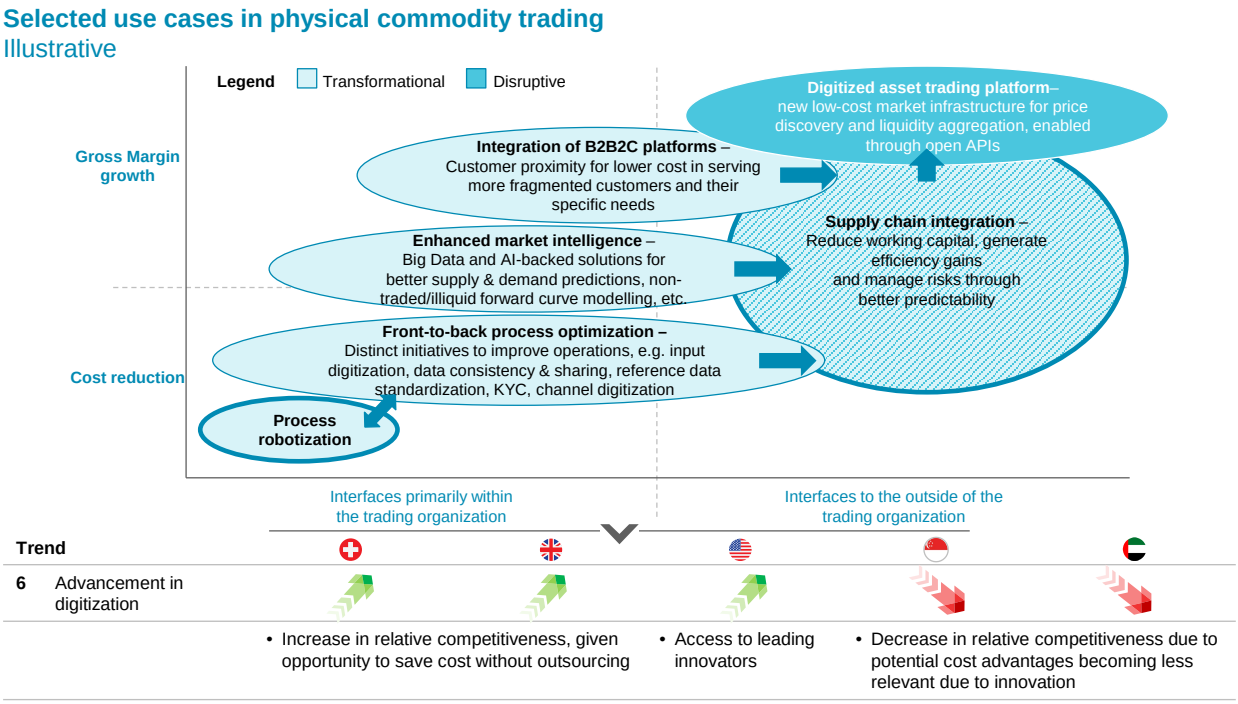
Source: (Oliver Wyman proprietary data and analysis, 2017)

4.2.3. Advances in digitization

Driven by stagnating margins and the megatrend towards digitization and efficiency, commodity traders are pursuing transformational initiatives. This development has reduced the cost advantages across the hubs and diminished the relative advantage of low-cost hubs. (See Figure 35.)

A recurring topic in interviews was the need for governments to take a proactive role in digitization, supporting the development and implementation of emerging technologies. While the new technologies are expected to have a global impact, their development and implementation will start in the hubs that can offer the best talent and infrastructure. Interviewees see a competitive advantage for those locations that can build an innovative ecosystem and attract early adopters. A continuous dialogue and cooperation with market players is crucial in this process. Blockchain, in particular, is seen as a game-changing technology, given the significant cost-reduction opportunities it offers for financial flows and administrative tasks, as well as security and traceability relevant for compliance processes. Currently, both Switzerland and Singapore are perceived to be investing significantly in this area, while the UK benefits from its focus on fintech and the US from its strong technology positioning, thanks to Silicon Valley. However, the interviewees indicated that the hubs ought to leverage their positioning for the commodity trading sector and involve it to a larger extent.

Figure 35: Selected use cases in physical commodity trading



Source: (Oliver Wyman proprietary data and analysis, 2017)

4.3. Integrity and Environment

We see three movements in terms of integrity and the environment that will have an impact on the hubs in the future:

- Alignment of international corporate tax legislation
- Increasing capital requirements and financial regulations
- Rise of public activism and initiatives

4.3.1. Alignment of international corporate tax legislation

A number of those we interviewed said that global competitive advantages are shrinking. Based on data and analysis, the hubs are becoming aligned in terms of international corporate tax legislation: Four out of the five hubs are implementing the OECD's base erosion and profit shifting (BEPS) measures. There are variations between the hubs in their implementation of the BEPS actions, which are designed to tackle tax avoidance strategies exploiting gaps and mismatches in tax rules to artificially shift profits to low or no-tax locations. (See Figure 36.)

On top of BEPS actions, Switzerland is expected to introduce a national tax proposal by 2020. Based on the benchmarking analysis (see Chapter 3.2), Switzerland has increased its historically low corporate tax rate over the past years, while the UK has reduced its rate since 2011. At the same time, Singapore and Dubai are offering even more efficient strategies, with significant tax offsets for commodity traders, as compared to other corporates. While some of

the interviewees said that the potential to offset Switzerland's high cost environment through tax savings has decreased, other commodity traders consider it less important when choosing a location. The corporate tax was ranked second to other factors, such as quality of life and private income tax rates.

Figure 36: Expected implementation of OECD base erosion and profit shifting (BEPS) actions by country

Expected implementation of OECD BEPS actions by country (as of March 2017)[1]

Commentary

- OECD estimates potential annual corporate income tax (CIT) revenues of ~ 4–10% of global CIT revenues, i.e.~ $100–240 BN p.a.
  - Particularly strong potential impact in developing countries, given higher reliance on corporate tax as a source of revenue
- On top of implementation of BEPS, Switzerland is responding to pressure from EU and OECD for Swiss privileged taxation of holdings
  - Corporate Tax Reform III has been refused by voters
  - Tax Proposal 17 represents a "lighter version", ensuring a general increase in the competitiveness of the Swiss tax system, while abolishing selected special tax regimes

Trend					
7	Alignment of international corporate tax legislation	• Already most advanced OECD's BEPS implementation • Introduction of TP17	• Collaborative implementation of BEPS under an internationally inclusive framework • Potential decrease of corporate tax rate in the US driven by Trump administration		• No changes in tax legislation or alignment expected

1. Total of 15 actions, Action 11 has not been implemented yet
Source: OECD, Deloitte, Swiss Federal Department of Finance, Oliver Wyman analysis

Impact on hub positioning: Positive Neutral Negative

Source: (OECD, 2017), (Deloitte, 2017), (Swiss Federal Department of Finance, 2017), (Oliver Wyman proprietary data and analysis, 2017)

4.3.2. Increasing financial regulations

Financial regulations impact commodity traders in three ways:

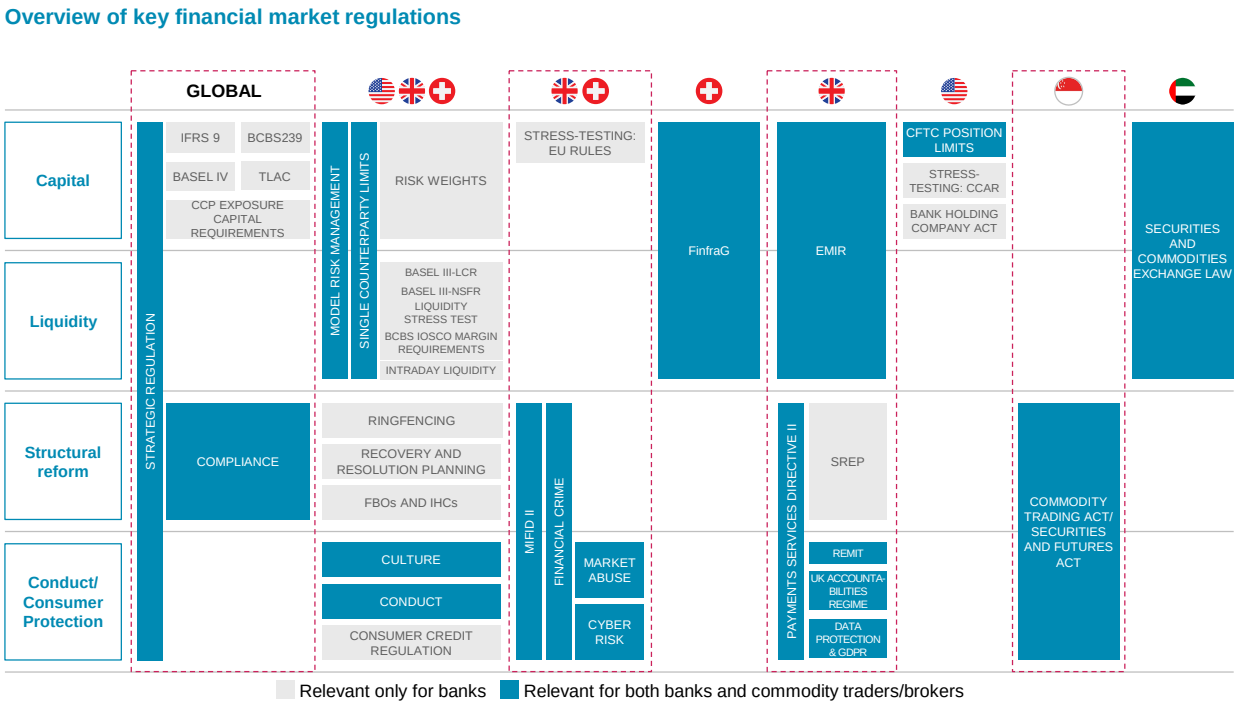
1. Traders need to hold substantial amounts of capital related to risk-taking activities, which are consistent on a global basis. As a result, some banks have reduced their commodity trading activities, which has been a mixed blessing for traders. On the one hand, the exit by the banks has provided commodity traders with new business opportunities; but at the same time, the exit by banks has reduced traders' access to financing.

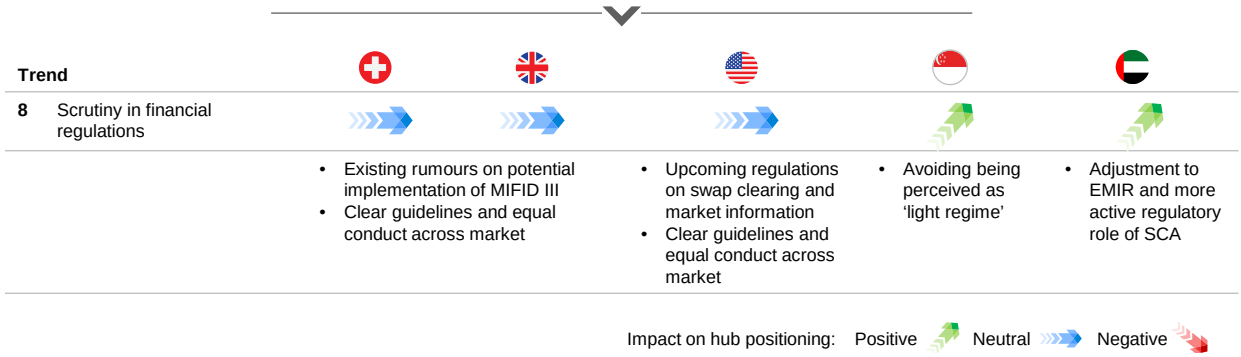
2. Additionally, regulations related to trading commodity derivatives have been introduced, and the EU's Markets in Financial Instruments and Derivatives (MiFID) is expected to drive additional amendments. These regulations are expected to result in regional differences related to trading of some of the instruments, such as derivatives on European oil products, despite the ability to trade these globally.

3. Lastly, different compliance and anti-money laundering requirements are being introduced at the national level. This could result in lower regulatory costs in the short term and a competitive advantage for traders, depending on location.

Figure 37 provides an overview of the key financial markets regulations impacting the different hubs.

Figure 37: Overview of key financial market regulations





Source: (Oliver Wyman proprietary data and analysis, 2017)

Regulatory differences have resulted in players receiving some preferential treatment in emerging hubs, as compared to Switzerland, the UK, and the US. (See Figure 37.) In interviews, commodity traders in select asset classes, such as precious metals, indicated that audit and compliance standards on origin of products might differ among hubs. Players across asset classes such as agricultural/soft commodities have highlighted the fact that having a global footprint and being sensitive to end customer perceptions enforce an adherence to global standards regardless of headquarter location. This provides a competitive advantage to those firms operating in lightly regulated hubs, as stricter regulations result in higher operating costs.

But interviewees acknowledged the value of the regulations, especially related to the security, safety, and quality of the products, and said that lighter regulation can negatively impact the reputation of companies. The challenge for a hub is to find the balance between control and business efficiency, while enforcing a level-playing field globally. According to the traders, the correct approach is to benchmark global standards, stay in line with the playing field, and enforce global consistency. Other players whom we interviewed said that a positive differentiation might also be considered a competitive advantage.

4.3.3. Rise of public activism and new initiatives

Over the past few years, there has been a rise in activism and public initiatives in Europe, particularly in Switzerland, which has seen the greatest degree of self-regulatory activity. (See Figure 19, Figure 20, and Figure 21.)

With regards to industry-led initiatives, no overarching data is available across the different hubs, as companies' business models and priorities and regulation vary significantly depending on the jurisdiction. A possible proxy for assessing the industry-led activity would be the Global Reporting Initiative (GRI) and the United Nations Global Compact.

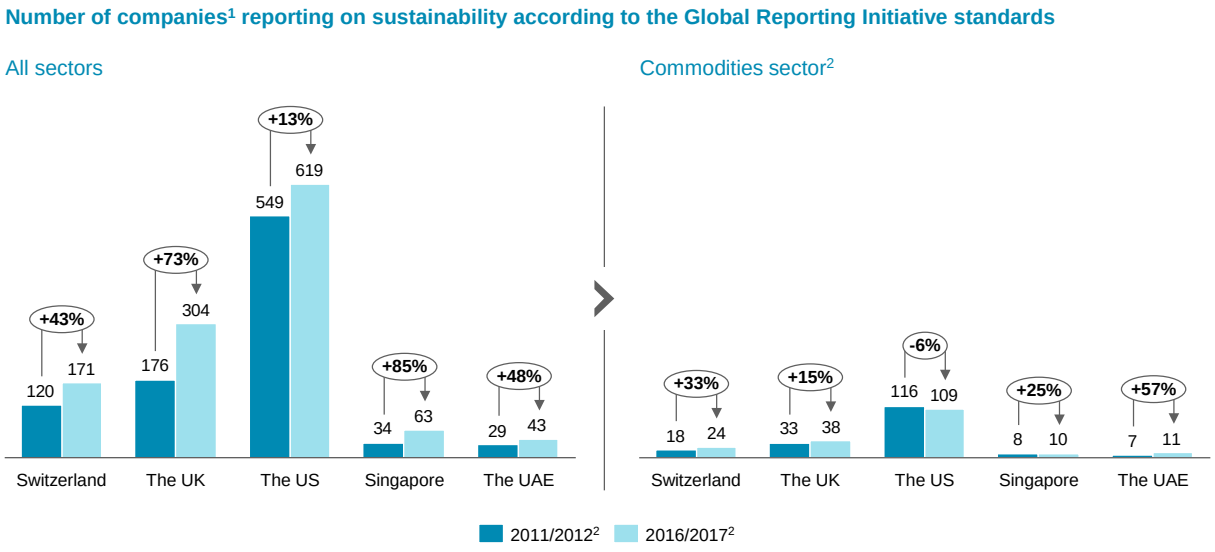
The GRI is an independent international organization founded in Boston, which focuses on sustainability reporting. It enjoys broad support by the governments promoting sustainability reporting, such as the UK (Department for International Development) and Switzerland (SECO). The GRI's Sustainability Reporting Standards include companies reporting on the impact of critical sustainability issues on their business: Only companies that fulfil GRI standards are in the evaluation. The standards are based on two categories:

- Universal standards, including foundation principles, general disclosures on the organization, and management approach

- Topic-specific standards based on three pillars: economic, environmental, and social

Given potential regional bias due to the GRI's strong US focus and historical presence, as well as lack of specificity related to the commodity trading industry, it is not advisable from an analytical perspective to compare the number of companies fulfilling the GRI standards. However, the relative development across the hubs over the past years illustrates the increasing level of sustainability reporting of commodities companies. (See Figure 38.) The figure shows that the industry-led initiatives have increased across all hubs, except for the US.

Figure 38: Number of companies reporting on sustainability according to the Global Reporting Initiative standards



1. No duplications of organizations
2. Companies in the following sectors: Agriculture, Chemicals, Energy, Energy Utilities, Metals Products, Mining

Source: (Global Reporting Initiative, 2017)

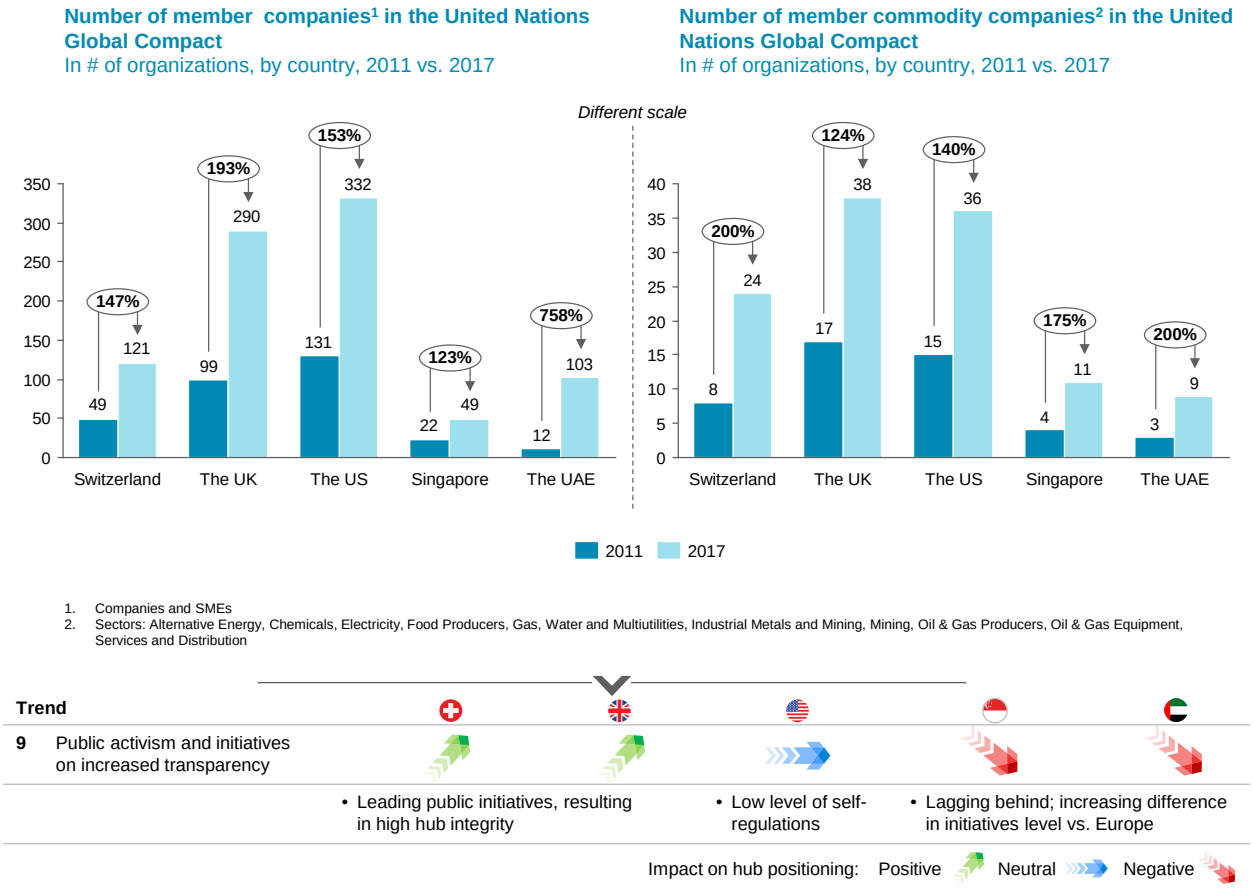
In order to avoid potential data misinterpretation driven by the regional presence of the GRI, another initiative was studied that has a broader international reach: the United Nations Global Compact. (See Exhibit 39.) The UN Global Compact is an initiative that encourages various organizations from different industries and countries to adopt its principles on social and environmental responsibility and report on their implementation. UN Global Compact initiatives cover a wide range of topics in social and environmental space, including:

- Anti-corruption
- CEO Water Mandate
- Child-Labour platform
- Carbon-pricing champions
- Supply-chain advisory group

While this initiative is not primarily focused on commodity trading, it illustrates growing industry-led initiatives in the commodities sector, with Singapore and Dubai catching up with their peers. It should also be noted that the development of local membership bases is positively correlated with launch dates of the local networks:

- Switzerland: local network launched in 2011
- The UK: local network launched in 2003
- The US: local network launched in 2007
- Singapore: local network launched in 2005
- The UAE: local network launched in 2015

Figure 39: Number of member companies in the United Nations Global Compact



Source: (United Nations Global Compact, 2017), (Oliver Wyman proprietary data and analysis, 2017)

One development noted by traders was the difference between hubs in terms of integrity and environmental activism. (See Figure 19, Figure 20 and Figure 21.) Based on interviews, the value of standards and regulations was granted for reasons of security and safety, as well as product quality. But the players emphasized the need for coordinated regulation across the hubs and the enforcement of a level-playing field so as not to distort global competition.

Additionally, private-sector interviewees highlighted the unique opportunity of Switzerland's political system to offer a platform for a so-called 'trialogue,' such as a platform for discussion among the private sector, government officials, and NGOs. Some interviewees indicated their company's interest in a trialogue, suggesting the setup is more conducive to a discussion focusing on company-specific issues, rather than industry-level discussions, thus, leading to an agreement on a set of actions.

5. Elements of a future commodity-trading hub

Based on discussions with industry participants, ranging from commodity traders to governmental representatives, financial institutions, NGOs, and academics, a number of priorities and expectations for a future commodity-trading hub were identified:

- **Transparency and stability:** From a business perspective, the transparency, political stability, and legal framework of the hub all play important roles in location choice, and should, therefore be areas of focus for the hubs. The interviews highlighted that hubs would greatly benefit from a situation in which both private and public sectors would 'know and play by the rules of the game.'
- **Leading multi-stakeholder discussions**: It is important for a hub to be proactive in leading the discussion between different stakeholders, ranging from the private sector to NGOs and academia. The respective government should position itself beyond simply acting as an 'observer,' and instead drive the discussion forward. Based on interviews, there is a convergence between NGOs and commodity traders in their expectations of the role of government in multi-stakeholder discussions. Some participants mentioned the necessity for the government to organize one-on-one discussions between a single company and the NGOs, while government representatives act as 'moderators' – this would result in a more effective 'trialogue' and tangible action plans.
- **Regular communication on the role of the commodity trading industry:** Different stakeholders highlighted the need for transparency on the role of the commodity trading industry for the hub's economy. Given their access to data on the industry's contributions in terms of employment, tax revenues, and share of the GDP, government authorities are best positioned to drive transparency.
- **Global standards and alignment of regulations:** Significant variations in regulations and standards among the hubs may influence location choice. Therefore, it is important for authorities to collaborate to ensure global standards, with the objective of minimizing variations in regulations. Some interviewees said this would benefit the safety and security of the workforce, the quality of the products and environment, and maintain a level playing field in terms of control and associated costs.
- **Cost efficiency and business friendliness:** Given shrinking margins and resulting cost pressures, factors such as real estate prices, corporate and personal taxation, and the cost of living become increasingly important, especially when establishing a new organization. Hubs with relatively higher cost structures may be able to offset this effect by establishing a business-friendly environment that provides greater accessibility, active support, and communication between local authorities and the private sector.
- **Development and implementation of digitization:** Participants highlighted the importance of investments in digitization and the disruptive potential of new emerging technologies. Hubs may benefit by encouraging the establishment and development of an emerging digital ecosystem, including talent, professional services, and a legal framework to attract early adopters of the technology.

The development of the future commodity hub remains a dynamic playing field with lots of moving parts driven by the industry, macroeconomic factors, such as trading flows, and competitive efforts by the hubs to retain and attract traders. The next years will tell how the story

evolves, which of the key factors and trends will prevail, and which behaviors will ensure a winning position for certain hubs.

6. Methodological explanation

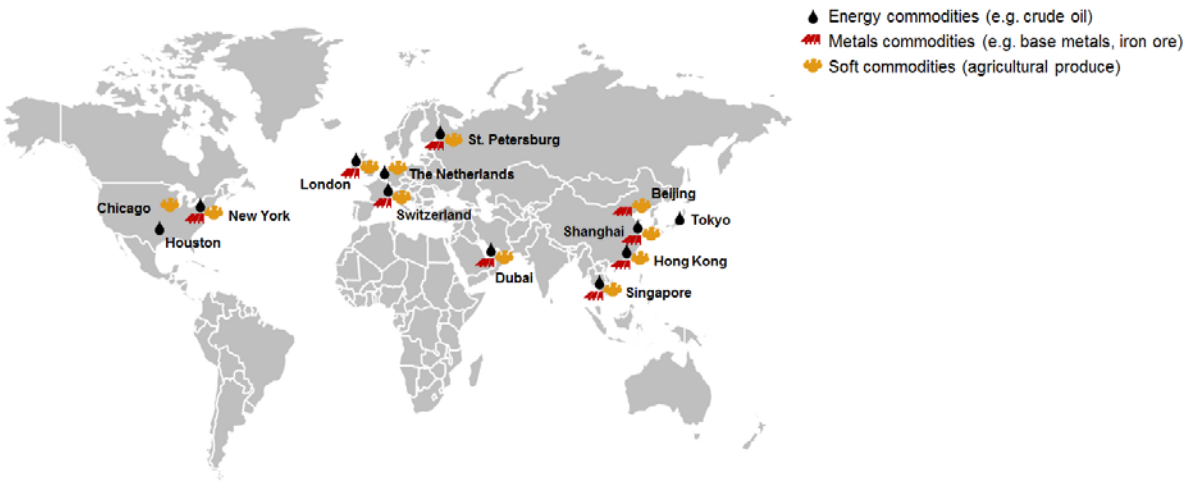
6.1. Selection criteria for global hubs

The methodology for selection of the peer group was based on three phases:

- Identification of potential peers: developing a comprehensive list of global hubs active in the commodity trading sector across various commodity classes
- Evaluation of the identified hubs along predefined criteria: assessing the hubs based on three dimensions: economic factors, competitiveness, and integrity and environment
- Selection of peer group: creating a shortlist of a maximum four peers based on the evaluation in Step 2 for comparison with Switzerland

First, an initial long-list of potential peers was defined amongst global hubs, with no limitation in terms of geographies or commodity classes. (See Figure 40: Global commodity-trading hubs.)

Figure 40: Global commodity-trading hubs

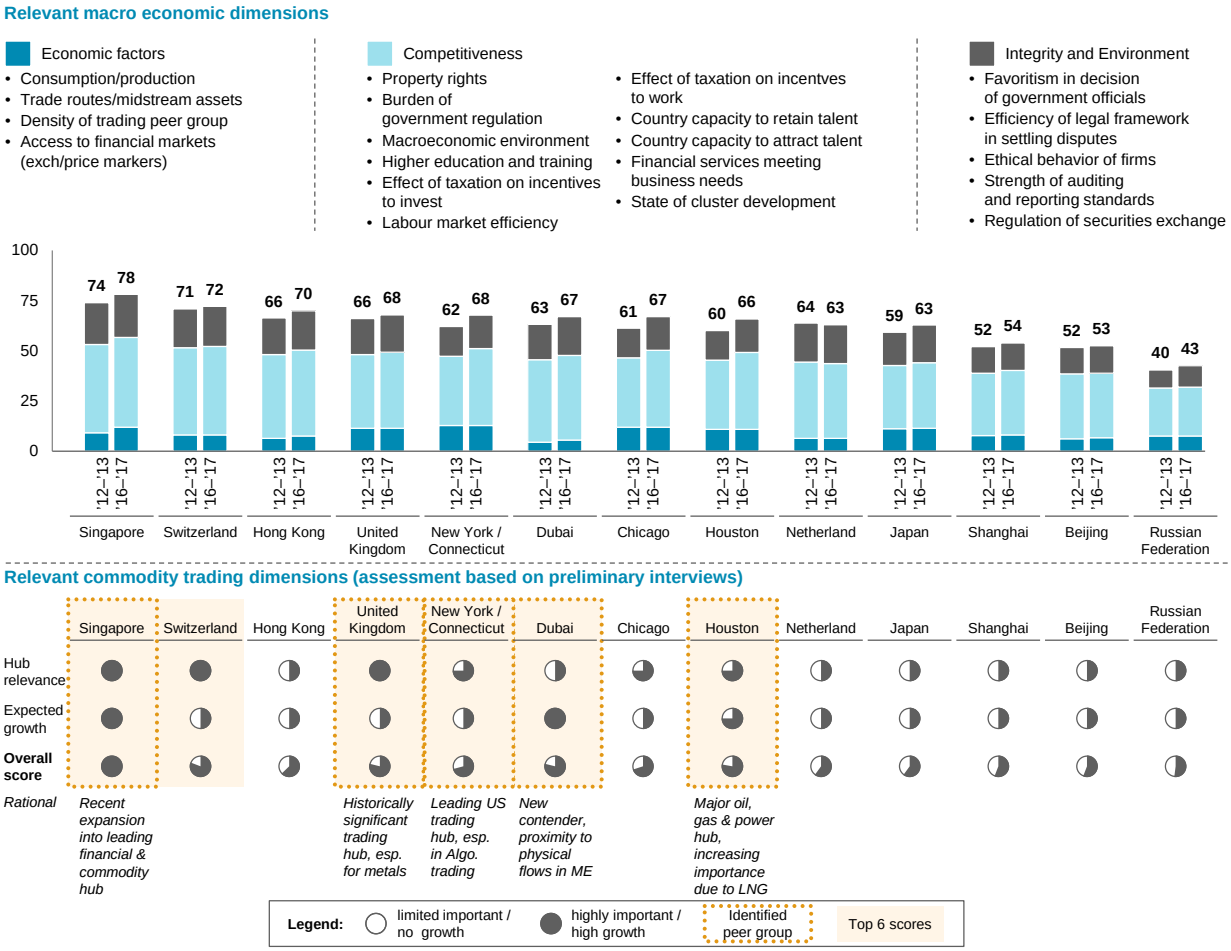


Source: (Oliver Wyman proprietary data and analysis, 2017)

Having defined the potential peer group, there were a number of hubs that could be considered as critical peers for Switzerland, taking into account various commodities. Using the WEF Global Competitiveness Index 2011-12 and 2016-2017, we evaluated the long list of hubs based on the three dimensions. Then, we conducted preliminary interviews with commodity traders to ascertain whether our assessment was valid. (See Figure 41: Peer set.)

Based on our evaluation, four hubs were selected as critical peers for Switzerland: Singapore, London, Houston and New York/Connecticut (grouped together as the US), and Dubai.

Figure 41: Peer set[4]



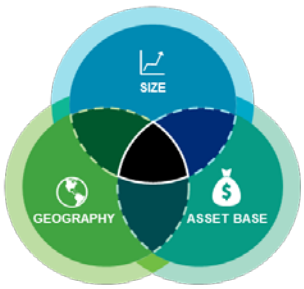
Source: (WEF, 2016), (Oliver Wyman proprietary data and analysis, 2017)

[4] Attributes were ranked on a scale from 1 (worst) - 7 (best)

6.2. Interviews – Segmentation criteria

Figure 42: Selection criteria per stakeholder group

Commodity traders



- Representative sample of commodity traders to include industry participants of:
  - Different locations
  - Various sizes
  - Asset backed vs. independent players

NGOs

- Number of NGOs ranging from:
  - General environmental and more 'generic' activists
  - Energy/resource focus along the value chain
  - Organizations specialised on commodity trading

Other stakeholders

Financial institutions/ Corporates
- Representatives of financial trading and procurement

Industry associations
- Various organizations active in advocacy, advisory and research

Academia
- Leading professors in the field of commodities trading

Figure 43: Selection of a representative group of commodity traders

	Geography[1]					Size[2]			Asset base	
Potential interviewee	Switzerland	London	USA	Dubai	Singapore	Large	Medium	Small	Asset backed	Indepen-dent
Large integrated producer and trader	✓					✓			✓	
Leading trader and logistics provider	✓					✓				✓
Intl. marketing and trading arm of an oil company	✓						✓		✓	
Privately-held energy trader	✓						✓			✓
Trading arm of a large metals & mining company	✓							✓	✓	
Intl. agricultural trading company	✓							✓		✓
Large multi-asset producer and trader		✓				✓			✓	
Global energy and comm. trading company		✓				✓				✓
Trading arm of a large power generating company		✓					✓		✓	
Global independent commodities merchant		✓					✓			✓
Trading arm of a multinational utility company		✓						✓	✓	
Intl. oil and petroleum products trader		✓						✓		✓
Large agri/industrial producer and trader			✓			✓			✓	
Global public agri/fuel trader			✓			✓				✓
Trading arm of a large oil & gas producer			✓				✓		✓	
Crude oil and petrochemicals producer and trader			✓				✓			✓

	Geography[1]					Size[2]			Asset base	
Potential interviewee	Switzerland	London	USA	Dubai	Singapore	Large	Medium	Small	Asset backed	Indepen-dent
Trading arm of a regional generator of electricity			✓					✓	✓	
International trader of oil, coal, gas, power and metals			✓					✓		✓
N/A				✓		✓			✓	
N/A				✓		✓				✓
Trading arm of a Middle Eastern national oil company				✓			✓		✓	
International oil and gas trader				✓			✓			✓
Emerging energy trader				✓				✓	✓	
N/A				✓				✓		✓
N/A					✓	✓			✓	
Large commodity trading and logistics company					✓	✓				✓
Trading arm of a large international mining company					✓		✓		✓	
Supply chain manager of energy and agricultural products					✓		✓			✓
Trading arm of an Asian gas producer					✓			✓	✓	
International trading company focusing on agricultural products					✓			✓		✓

1. Preference given to companies headquartered in relevant hub – if unavailable, sample may include companies with office representation in the relevant hub; 2. Defined by gross margin: for oil traders and multi: large >$1BN, medium >$300 MM

6.3. Hierarchy of dimensions and metrics

As described in Chapter 1.3 (‘Benchmarking methodology’), all metrics within each dimension and sub-dimension were equally weighted, so as to avoid the potential for subjectivity. Additionally, no average weighting was applied across the three dimensions, as any potential trade-offs among economic factors, competitiveness, and integrity and environment are subject to the economic and/or societal goals of different stakeholders.

An overview of detailed hierarchy levels, which represent the base for respective weighting, is presented below:

- Economic Factors – Figure 44: Hierarchy of the dimension A. Economic Factors
- Competitiveness – Figure 45: Hierarchy of the dimension B. Competitiveness
- Integrity and Environment – Figure 46: Hierarchy of the dimension C. Integrity and Environment

Figure 44: Hierarchy of the dimension A. Economic Factors

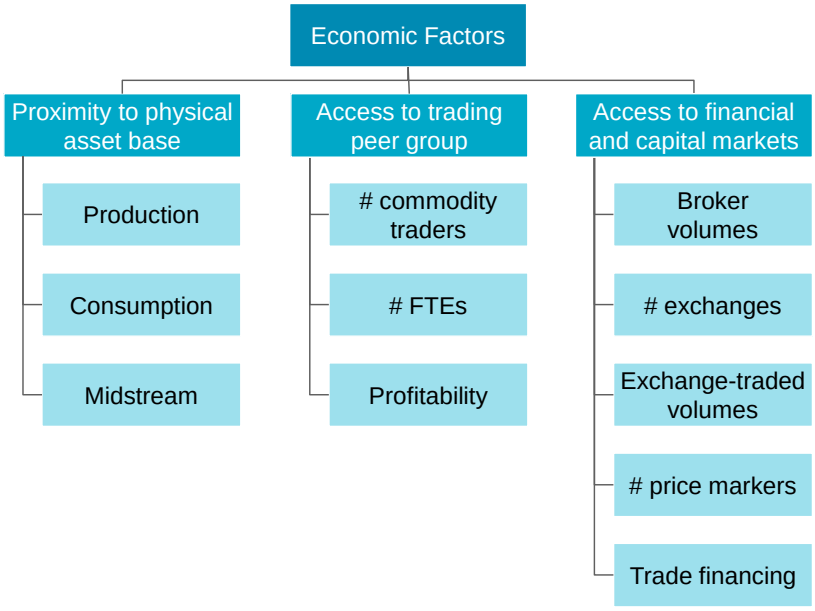


Figure 45: Hierarchy of the dimension B. Competitiveness

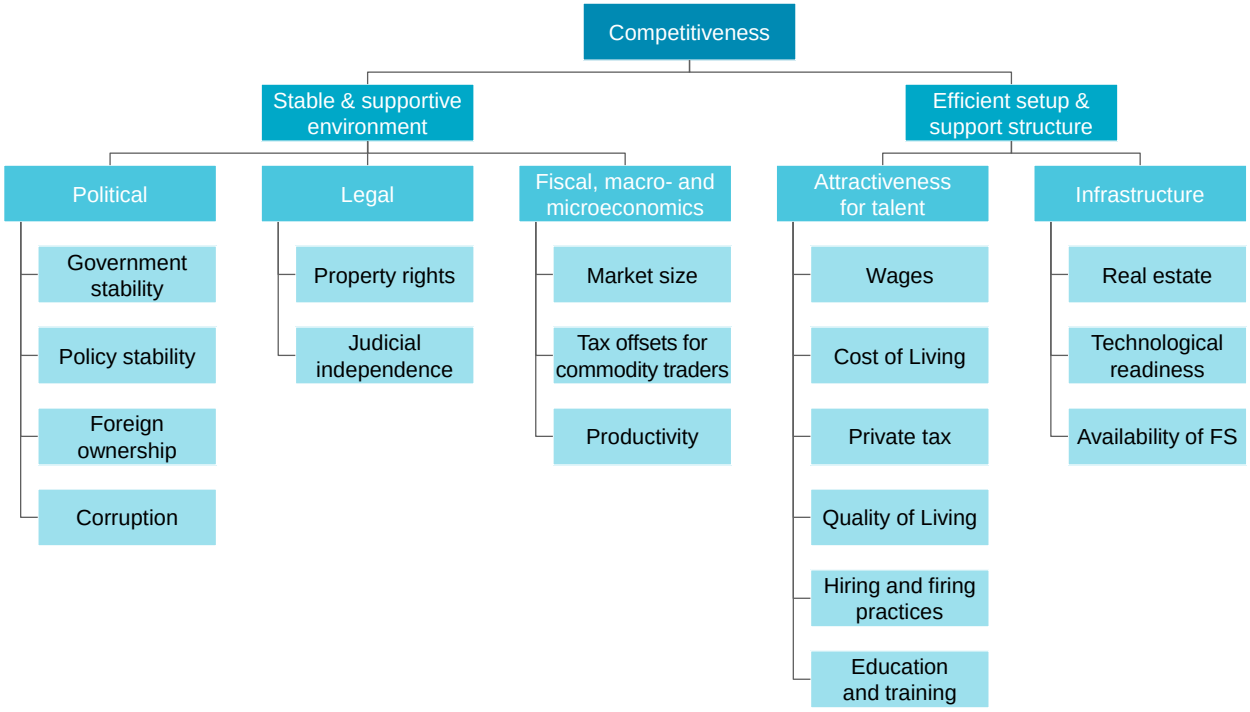
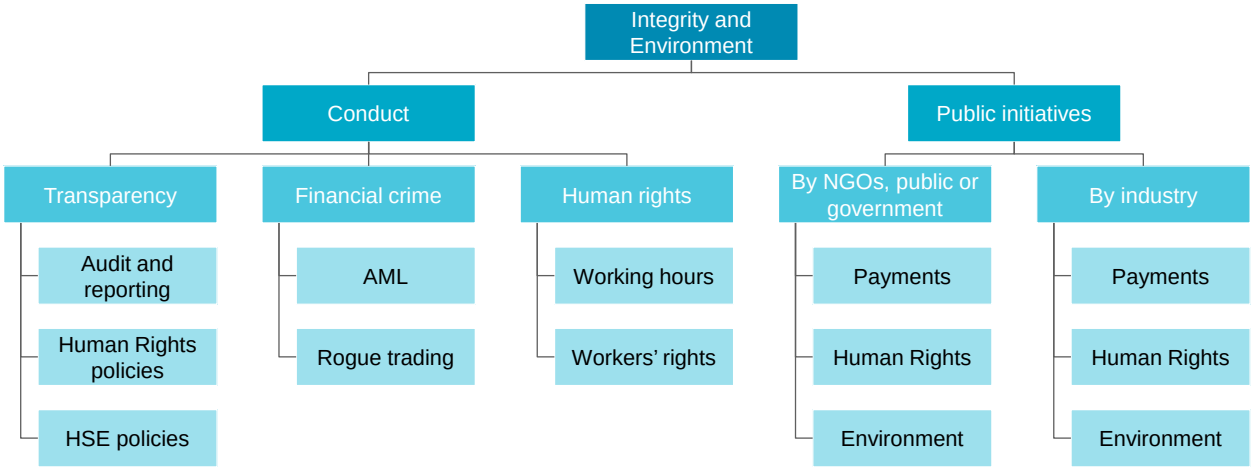


Figure 46: Hierarchy of the dimension C. Integrity and Environment



Appendix A. Benchmarking 2011

A.1. Economic Factors

Figure 47: Positioning of the hubs for dimension A. Economic Factors, as of 2011

	Proximity to physical asset base			Access to trading peer group			Access to financial and capital markets					
2011	Production	Consumption	Midstream	# comm. Traders	# FTEs	Profitability	Brokered volumes	# exchanges	Exchange-traded volumes	# price markers	Trade financing	Final ranking
1	AE	AE	US	UK	US	CH	UK	US	US	UK	CH	UK
2	CH	SG	CH UK	CH	SG	UK	US	UK AE	UK	CH	US	CH
3	UK	CH	SG	SG	UK	US	CH	SG	SG	US	SG	US
Comment												

	Value of commodity production in $BN	Value of commodity consumption in $BN	Average placement midstream[1]	Company repre-sentation by hub[2]	In FTEs[3]	Value of Merchanting in $BN	Average placement brokered volumes[1]	# exchanges per hub	Volume split of exchange-traded contract value (in USD)	Average placement price markers[1]	In $BN
CH	2 2,990	3 1,873	2 2.1	2 ~415	~820	1 22.6	3 3.0	0	0%	2 2.2	1 29.0
UK	3 2,369	1,480	2 2.1	1 ~640	3 ~825	2 12.2	1 1.0	2 2	2 42%	1 1.5	4.4
US	1,867	1,568	1 2.0	~280	1 ~1,730	3 9.5	2 2.0	1 4	1 55%	3 2.3	2 19.3
SG	1,878	2 2,040	3 2.9	3 ~365	2 ~920	0.7	4.0	3 1	3 2%	3.3	3 11.1
AE	1 3,292	1 2,146	3.0	~60	~240	4.8[4]	5.0	2 2	0%	4.5	0.5

1. Deep-dives on underlying data and sub-metrics provided
2. Assuming following growth since 2011: Switzerland: -5%, the UK: 0%, the US: -5%, Singapore: +10%, Dubai: +100%
3. Front office only, i.e. employees with job titles: trader, trading manager/director/assistant/analyst/expert/specialist/ support analyst, chief trader, head of trading, trade marketing executive, marketing, origination manager/director, marketing manager/director, sales and marketing specialist
4. Based on CAGR 2014-2016

Sources: (IMF, 2017), (BP, 2017), (World Bank, 2017), (Central Intelligence Agency (CIA), 2017), (UNCTAD, 2016), (Erdöl-Vereinigung, 2017), (IEA, 2017), (Capital IQ, 2017), (IE Singapore, 2016), (Dubai Chamber, 2017), (SNB, 2016), (Office for National Statistics Balance of Payments, 2016), (US Bureau of Economic Analysis, 2016), (Department of Statistics Singapore, 2016), (UAE Central Bank, 2016), (Bureau of Transportation Statistics, 2017), (STSA, 2017), (Energy Risk, 2017), (IJGlobal, 2017), (Platts, 2017), (Oliver Wyman proprietary data and analysis, 2017)

Figure 48: Proximity to production and consumption per hub, as of 2011

Production by asset class[1]
In $BN, +/- 3 time zones, 2011

	Oil	Gas	Coal	Precious metals	Base metals	Softs	Total Production	Final rank Production
	1,961	615	180	32	51	151	2,990	2
	1,590	483	100	25	43	128	2,369	3
	793	354	137	55	112	417	1,867	4
	301	174	612	63	126	601	1,878	5
	1,994	631	245	33	61	329	3,292	1

Consumption by asset class[1]
In $BN, +/- 3 time zones, 2011

	Oil	Gas	Coal	Precious metals	Base metals	Softs	Total Consumption	Final rank Consumption
	1,094	559	73	36	37	74	1,873	3
	873	439	32	32	35	68	1,480	5
	1,024	355	65	23	40	61	1,568	4
	1,027	214	305	117	204	172	2,040	2
	1,218	580	108	87	50	104	2,146	1

1. Oil includes crude oil, shale oil, oil sands and NGLs (natural gas liquids); gas includes natural gas produced for Gas-to-Liquids transformation; non-precious metals include aluminium, copper, iron ore, lead, nickel, tin and zinc; precious metals include gold, platinum, silver; softs include bananas, cocoa, coconut, palm kernel oil, coffee, cotton, maize, natural rubber, soybean oil, rice, soybeans, sugar, tea and wood pulp.
Note: Regional split as follows: Switzerland: Europe and Eurasia, Middle East and Africa; UK: Europe, Eurasia excl. Kazakhstan, Pakistan, Turkmenistan, Uzbekistan, plus Middle East excl. Iran and Iraq, plus Africa; US: North, Central and South Americas, for UAE: Europe and Eurasia, Middle East, Africa and India; for Singapore: APAC incl. India

Sources: (IMF, 2017), (BP, 2017), (World Bank, 2017), (Central Intelligence Agency (CIA), 2017), (UNCTAD, 2016), (Erdöl-Vereinigung, 2017), (IEA, 2017), (Oliver Wyman proprietary data and analysis, 2017)

Figure 49: Proximity to midstream per hub, as of 2011

Midstream: Storage, bulk freight and pipeline network
2011

	Storage capacities	Bulk ports in MT						Pipeline network[1]	
	Oil storage capacities (mmbbl)	Goods loaded: Crude	Goods loaded: Petroleum products and oil	Goods loaded Dry cargo	Goods unloaded Crude	Goods unloaded Petroleum products and oil	Goods unloaded Dry cargo	Gas (km)	Oil and refined products (km)
	1,300	513	414	2238	801	456	1774	481341	142481
	1,300	513	414	2238	801	456	1774	481341	142481
	1,610	254	84	902	71	74	363	2152495	279734
	1,110	918	388	2028	698	332	3093	124328	62253
	600	413	217	1140	365	222	928	494922	162493

Ranks per asset class and final metric ranking methodology

	Storage capacities	Bulk ports in MT							Pipeline network				
	Oil storage capacities	Goods loaded: Crude	Goods loaded: Petroleum products and oil	Goods loaded Dry cargo	Goods unloaded Crude	Goods unloaded Petroleum products and oil	Goods unloaded Dry cargo	**Bulk ports placement**	Gas (km)	Oil and refined products (km)	**Pipeline placement**	**Total placement**	**Final rank Midstream**
	2	2	1	1	1	1	2	1.3	3	3	3.0	2.1	2
	2	2	1	1	1	1	2	1.3	3	3	3.0	2.1	2
	1	4	4	4	4	4	4	4.0	1	1	1.0	2.0	1
	3	1	2	2	2	2	1	1.7	4	4	4.0	2.9	3
	4	3	3	3	3	3	3	3.0	2	2	2.0	3.0	4

1. Assumed stable based on available data as of 2013/2017

Sources: (IMF, 2017), (BP, 2017), (World Bank, 2017), (Central Intelligence Agency (CIA), 2017), (UNCTAD, 2016), (Erdöl-Vereinigung, 2017), (IEA, 2017), (Oliver Wyman proprietary data and analysis, 2017)

Figure 50: Brokered volumes by hub, as of 2011

Broker volumes[1]
Market shares per hub, 2011[2]

	Energy	Oil and products	Natural gas	Power	Precious metals
	12%	12%	11%	15%	16%
	33%	24%	39%	45%	26%
	20%	23%	17%	21%	23%
	6%	5%	6%	7%	6%
	1%	1%	1%	1%	1%

Ranks per asset class and final metric ranking methodology

	Energy	Oil and products	Natural gas	Power	Precious metals	Average placement	Final rank for Broker volumes
	3	3	3	3	3	3.0	3
	1	1	1	1	1	1.0	1
	2	2	2	2	2	2.0	2
	4	4	4	4	4	4.0	4
	5	5	5	5	5	5.0	5

1. Based on Top 10 players by market share per asset class, covering ~80% of the market – therefore, total of market shares across the hubs does not equal to 100%
2. Data as of 2013 due to methodology change (points to market share percentages)

Sources: (Energy Risk, 2017)

Figure 51: Price markers by hub, as of 2011

Price markers
# of markers per hub, 2011

	Metals	Natural Gas	Petroleum Assessment	Agriculture	Coal	Petrochemicals
	14	63	69	21	1	23
	17	63	125	21	1	23
	15	6	146	4	8	22
	4	0	114	0	0	41
	0	0	22	0	0	0

Ranks per asset class and final metric ranking methodology

	Metals	Natural Gas	Petroleum Assessment	Agriculture	Coal	Petrochemicals	Average placement	Final rank for Price markers
	3	1	4	1	2	2	2.2	2
	1	1	2	1	2	2	1.5	1
	2	3	1	3	1	4	2.3	3
	4	4	3	4	4	1	3.3	4
	5	4	5	4	4	5	4.5	5

Sources: (Platts, 2017)

A.2. Competitiveness

Figure 52: Positioning of the hubs for dimension B. Competitiveness, as of 2011

2011	Government stability	Policy stability	Foreign ownership	Anti-corruption	Property rights	Judicial independence	Market size	Tax offsets for comm. traders	Productivity
Comment									
	WEF Survey[1]	WEF Survey[1]	WEF Index (0-7/low-high)	WEF Survey[1]	WEF Index (0-7/low-high)	WEF Index (0-7/low-high)	WEF Index (0-7/low-high)	Tax rate (in %) for commodity traders[2]	WEF Index (0-7/low-high)
	0.7	5.8	5.7	0.3	6.4	6.4	4.5	11.6[3]	5.3
	0.0	4.0	6.2	0.9	6.0	6.2	5.8	26.0	4.6
	2.7	5.7	5.1	2.5	5.1	4.9	6.9	29.0[4]	4.9
	0.7	0.7	6.4	0.3	6.4	5.6	4.6	5.0[5]	5.5
	0.3	4.7	4.9	1.9	4.8	5.1	4.4	0.0[6]	4.7

1. From the list of factors, respondents to the World Economic Forum's Executive Opinion Survey were asked to select the five most problematic factors for doing business in their country. The score corresponds to the responses weighted according to their rankings, i.e. 0 – least problematic
2. Corporate tax rates minus tax offsets for commodity trading companies
3. Based on trade offsets for commodity traders in canton Geneva
4. Incl. average effective corporate tax income rate at federal level (of 24%) and average effective state rate of Texas (of 5%), which may be deduced from profits subject to federal income tax
5. Assuming qualification for Global Trader Program (GTP)
6. Assuming no engagement in the production of oil and gas or extraction of other natural resources in the United Arab Emirates

Sources: IMF, WEF Competitiveness Report, PWC Worldwide Tax Summaries, Deloitte Corporate Tax Rates 2017, Reuters, National legislations, Oliver Wyman proprietary data and analysis

2011	Wages	Cost of Living	Private tax	Quality of Living	Hiring and firing practices	Education and training	Real estate	Technological readiness	Availability of FS	Final ranking
1										
2										
3										

	Average salary (in USD)[1]	% indexed to Switzerland as base[2]	Private tax rate (in %)[3]	% indexed to Switzerland as base[4]	WEF Index (0-7/low-high)	WEF Index (0-7/low-high)	Overview office rental price in USD/sq. m./year[5]	WEF Index (0-7/low-high)	WEF Index (0-7/low-high)
	1 ~160 K	*Oliver Wyman's and Mercer's proprietary data*	3 20.0	*Oliver Wyman's and Mercer's proprietary data*	1 5.8	1 5.8	~810	1 6.3	1 6.6
	~130 K		34.0		4.4	3 5.5	~1,070	2 6.1	2 6.3
	2 ~140 K		2 19.0		2 5.1	2 5.6	2 ~690	5.2	3 6
	3 ~135 K		3 20.0		1 5.8	1 5.8	1 ~660	3 5.9	5.9
	~110 K		1 0.0		3 5.0	4.8	3 ~730	4.9	5.5

1. Average salary of senior, mid-level and junior levels of asset backed and independent trading houses; excl. variable compensation due to firm-level variations (e.g. deferrals, equity)
2. Comparison of price levels among the hubs in ten categories (food at home, alcohol and tobacco, domestic supplies, personal care, clothing and footwear, home services, utilities, food away from home, transportation, sports and leisure)
3. Maximum private tax rates adjusted, assuming most efficient marital status and full potential deductions, e.g. 401K in the US
4. Comparison of six dimensions, excluding duplications with other metrics, e.g. housing and real estate (socio-cultural environment, medical and health considerations, public services and transport, recreation, consumer goods, natural environment)
5. For Switzerland: Geneva and Zurich; for UAE: Dubai; for US: New York and Houston (no available consistent data for Connecticut); for UK: London; private housing has been excluded, as strong positive correlation, based on Mercer Cost of Living data

Sources: (IMF, 2017) (WEF, 2016), (KPMG, 2017), (International Enterprise Singapore, 2017), (UK Government, 2017), (Deloitte, 2017), (Farge, 2012), (PWC, 2017), (Oliver Wyman proprietary data and analysis, 2017)

A.3. Integrity and Environment

Figure 53: Positioning of the hubs for dimension C. Integrity and Environment, as of 2011

	Conduct							Public initiatives					
	Transparency			Financial crime		Human rights		By NGOs, public or government			By industry		
2011	Audit and reporting	Human Rights policies	HSE policies	AML	Rogue trading	Working hours	Workers' rights	Payments	Human Rights	Environ-ment	Payments	Human Rights	Environ-ment	Final ranking
1														
2														
3														

Comment	WEF Index (0-7/low-high)	% of fulfilment	Average placement HSE policies[1]	Basel AML Index (0-low risk, 10-high risk)[4]	Number of cases out of Top 50 cases by trading loss[2]	# working hours per week[3]	ITUC working rights index (6-break of rule of law, 1-irregular violations)	High/ med./ low	High/ med./ low	High/ med./ low	High/ med./ low	High/ med./ low	High/ med./ low
	3 5.6	1 100%	2 1.7	5.8	3 3.0	2 54.0	1 2.0	2 medium	2 medium	1 high	1 high	1 medium	1 medium
	2 5.9	1 100%	1 1.0	1 4.7	4.0	1 48.0	2 3.0	1 high	1 high	1 high	2 medium	1 medium	1 medium
	5.2	1 100%	4.3	3 5.3	17.0	1 48.0	3 4.0	1 high	2 medium	3 low	3 low	1 medium	1 medium
	1 6.2	2 36%	3 2.7	2 4.8	2 1.0	1 48.0	2 3.0	3 low	3 low	2 medium	3 low	2 low	1 medium
	5.3	3 21%	4.0	6.3	1 0.0	1 48.0	5.0	3 low	3 low	2 medium	3 low	2 low	2 low

1. Deep-dives on underlying data and sub-metrics provided
2. Cumulative by respective year
3. Based on maximum number of working days per week and maximum number of hours per day
4. Data as of 2012, due to first edition of Basel AML Index

Sources: (IMF, 2017), (WEF, 2016), (Freedom House, 2017), (International Labour Organization, 2017), (Basel Institute on Governance, 2017), (Transparency International, 2016), (Institute For Economics And Peace, 2016), (World Bank, 2017), (OECD, 2017), (ITUC, 2017), (Singapore's Ministry of Manpower, 2016), (EITI, 2017), (RCS Global, 2015), (McNeil & Drye, 2013), (Public Eye, 2017), (Bread for all, 2017), (Oliver Wyman proprietary data and analysis, 2017)

Figure 54: Health, safety, and environmental policies by hub, as of 2011

HSE policies
# of ILO conventions, 2011

	Fundamental conventions[1]	Governance conventions[2]	Technical conventions[3]
	8	3	46
	8	3	73
	2	1	11
	6	2	17
	6	1	22

Ranks per convention types and final metric ranking methodology

	Fundamental conventions[1]	Governance conventions[2]	Technical conventions[3]	Average placement	Final rank for HSE policies
	1	2	2	1.7	2
	1	1	1	1.0	1
	5	4	4	4.3	5
	3	2	3	2.7	3
	3	4	5	4.0	4

1.Total of 8 fundamental conventions covering core principles and rights at work (freedom of association, right to collective bargaining, elimination of forced labour, abolition of child labour, elimination of discriminations)
2. Total of 4 governance conventions related to international labour standards systems, such as labour inspection and employment policy conventions
3. Total of 177 technical conventions, focusing on specific issues related to labour, e.g. night working convention or chemicals convention

Source: (International Labour Organization, 2017)

Appendix B. Commodity trading compliance survey

B.1. Part 1: Public activism and initiatives

1. How would you assess the current level of integrity and environment across the hubs?

Hub	Very basic	Fairly basic	Intermediate	Fairly advanced	Very advanced
Switzerland	☐	☐	☐	☐	☐
The UK	☐	☐	☐	☐	☐
The US	☐	☐	☐	☐	☐
Singapore	☐	☐	☐	☐	☐
Dubai	☐	☐	☐	☐	☐

2. Have you experienced increased activity from regulators of NGOs related to transparency on financial flows, human rights, and/or the environment in the past five years?

	Financial flows			Human rights			Environment		
Hub	Decreased	Stayed the same	Increased	Decreased	Stayed the same	Increased	Decreased	Stayed the same	Increased
Switzerland	☐	☐	☐	☐	☐	☐	☐	☐	☐
The UK	☐	☐	☐	☐	☐	☐	☐	☐	☐
The US	☐	☐	☐	☐	☐	☐	☐	☐	☐
Singapore	☐	☐	☐	☐	☐	☐	☐	☐	☐
Dubai	☐	☐	☐	☐	☐	☐	☐	☐	☐

3. In comparison to selected metrics below, how important is integrity and the environment for your organization per hub?

	Proximity to physical assets			Taxation		
Hub	Less important	Equal importance	More important	Less important	Equal importance	More important
Switzerland	☐	☐	☐	☐	☐	☐
The UK	☐	☐	☐	☐	☐	☐
The US	☐	☐	☐	☐	☐	☐
Singapore	☐	☐	☐	☐	☐	☐
Dubai	☐	☐	☐	☐	☐	☐

	Talent			Political and governmental stability		
Hub	Less important	Equal importance	More important	Less important	Equal importance	More important
Switzerland	☐	☐	☐	☐	☐	☐
The UK	☐	☐	☐	☐	☐	☐
The US	☐	☐	☐	☐	☐	☐
Singapore	☐	☐	☐	☐	☐	☐
Dubai	☐	☐	☐	☐	☐	☐

4. What should change in terms of integrity and the environment, so that your organization would consider an office relocation?

B.2. Part 2: Industry-led initiatives

5. Is your organization a member of any multi-stakeholder initiatives, such as cooperating with active NGOs in the field of transparency on financial flows, human rights, and/or the environment? If yes, which initiatives?

6. Does your organization report on corporate responsibility along the following dimensions: financial flows, human rights, and the environment?

    a. If yes ⇨ Overall, do you feel the benefits that your public trust gained from your corporate responsibility disclosure justified the cost in resources required for preparation and monitoring of the disclosure?

    b. If no ⇨ What is the reasoning behind not reporting on corporate responsibility?

        ☐ Not applicable for business model
        ☐ Not required by regulators
        ☐ Other

B.3. Part 3: Classification of the commodity traders

7. What type of commodity trader is your organization?

    ☐ Independent
    ☐ Asset-backed

8. What is the indicative size of your organization (by gross margin per year)?

    ☐ Large ($300 million - $1 billion)
    ☐ Medium ($100 million to $300 million)
    ☐ Small (<$100 million)

9. What is the geographic footprint of the commodity trading business of your organization?

Hub	Switzerland	The UK	The US	Singapore	Dubai	Other
Headquarter	☐		☐	☐	☐	☐
Trading presence	☐		☐	☐	☐	☐

Appendix C. Recurring topics from interviews

The following appendix represents a summary of interview conclusions and recurring topics, and does not include any views or analysis of the authors of this study. All interviews were conducted on an anonymous basis.

C.1. Commodity traders

Overarching observations	• Switzerland is perceived to have a rather decreasing positioning in the past due to its high costs, shrinking tax advantage and increasing uncertainties related to public initiatives, resulting in an increasing policy instability, while being perceived as 'less transparent' when compared to the UK • In terms of prioritization of criteria for location selection, traders have named a number of elements: – Proximity to the customer base and the markets served; for asset-backed traders, proximity to headquarter and listing location is also important – Availability of talent and access to peer group as well as 'cluster effects', incl. financing services, markets and infrastructure (access to trade financing and clearing), legal services, research – Quality of life and attractiveness for employees and their families and cost-related factors, such as labor and infrastructure cost – Tax rates may not be primary drivers for location choice, but play an important role when setting up a new organization – Regulatory and political stability: access to and communication with authorities, possibility for a constructive dialogue with different stakeholders such as NGOs

A. Economic Factors	• Switzerland: Perceived as ideally located in terms of the time zone, with a strong access to financial services industry, high concentration of commodity traders and skillful workforce • The UK: Seen as attractive for its coverage of global time zones, access to a skilled workforce and leading market infrastructure; • The US: Perceived as a 'natural center' due to proximity to a big economy and its regional coverage (e.g. Houston for oil, Chicago for refineries), however, reduced ability to cover Asian clients due to time zone was mentioned; similar to the UK, perceived to have a leading market infrastructure • Singapore: Observed as a rapidly growing hub given growing customer base and business in Asia, proximity to physical assets in China and a well-developed logistics for commodity and employee travels (port and airport) • Dubai: Highlighted as covering a time zone with large production and consumption volumes; in terms of functions, front office roles are perceived as rather concentrated on marketing and origination and less on risk-taking activities; the state of market infrastructure and financial services industry considered as less mature, when compared to peers
B. Competitiveness	• Switzerland: Perceived as a neutral, international financial center with a relatively stable political environment and a high quality of life and good educational system; leading hub in the development of new technologies and digitization • The UK: Regulations related to transparency and 'rule of law' are perceived as strict; appears as more attractive for young talent in comparison to other locations, e.g. London is perceived to be a more global city than Geneva; in terms of political stability, uncertainties around Brexit remain – a potential deregulation in case of a 'hard Brexit' is assessed as less probable • The US: Described as competitive due to its existing talent and leading education systems, resulting in attractiveness and availability of talent at domestic level; however, mentioned as having a relatively complex and restrictive jurisdiction, especially related to working permit process for expats • Singapore: Perceived as more international than other Asian regional hubs and highlighted significant efforts in the area of digitization as well as efforts of authorities to attract trading companies • Dubai: quality of life perceived as lower by current generation of traders, when comparing to other hubs
C. Integrity and Environment	• Integrity and environment and 'transparency reputation' of the hubs on topics such as financial crime and human rights play an important role for traders – especially relevant from the perspective of reputational risks for asset-backed traders

Emerging trends	• Shift of volumes towards Asia: Growth of business opportunities and customer base in Asia, leading to a relative increase in importance of Singapore and Dubai – whether the growth is incremental or at cost of other hubs depends on the business model and asset classes of companies • New commodities: The rising demand for emerging commodities such as lithium and cobalt benefits hubs with proximity to production and consumption centers • Digitalization: Disruptive impact and potential for significant savings, e.g. through leverage of Blockchain in financial flows, operational processes and compliance – hubs' proactive positioning to create and develop digital ecosystems is expected to attract commodity traders • Variations in regulations and public activism: Higher transparency requirements can lead to better controls, consistent and clear 'rules of the game', higher security, safety and quality related to products and their origination (positive effect on company's reputation) – however, it may also result in additional administrative costs, and due to variations, potentially offer a competitive advantage to companies based in other hubs. This could result in a redistribution of talent and in companies migrating to other hubs, which may happen in a less visible way from an external perspective, e.g. transfer of trading activities or turnover without moving the headquarter or staff • Convergence of legislations: The convergence of international corporate tax legislations could decrease the comparative advantages of hubs initially benefitting from comparatively more attractive tax models • Competitiveness efforts of emerging hubs: Significant efforts observed from emerging hubs, such as Singapore, in terms of business friendly environment for commodity traders, e.g. tax models, financial regulations, capital requirements – at the same time, uncertainties remain related to established hubs: in the UK it is related to Brexit and its consequences, in Switzerland to fiscal policies (Corporate Tax Reform III) and political stability (Business Responsibility Initiative)

C.2. NGOs

Integrity and Environment in Switzerland	• Overall, some progress has been made over the past years – however, further significant efforts are required and the current state is the beginning of a continuous journey • In selected steps of the supply chain, Switzerland is already a global leader in terms of standards related to audit of product origination, safety, workers' rights and environment; increased transparency is required along the entire global supply chain • Self-regulation is perceived to still be at early stage, especially focused on transparency and human rights; despite increasing publication of CSR reports, the current level is not sufficient yet to be praised and further public efforts are required to raise awareness for self-regulation in the private sector or impose regulations as an alternative solution • High level of multi-stakeholder initiatives (commodity traders, NGOs, government, academia etc.) at both national and international levels, serving as a base for regulatory processes – however, some NGOs experience difficulties to assess the motivation behind the participation of the industry players. It may be driven by reputational risk management rather than real motivation for change and understanding and acceptance of issues
Perception of current positioning and recent developments of other hubs	• **UK**: developed standards in the metal sectors, but less mature development of multi-stakeholder initiatives
	• **US**: improvements achieved through the Dodd-Frank Act – however, NGOs are concerned about the current political orientation of the country
	• **Singapore**: early stage of development of issues related to responsible supply chain – however, public awareness in the domain of integrity and environment is rising
	• **Dubai**: developed standards to operationalize international guidance in selected commodity sectors – however, the overall development in terms of integrity and environment are still at an early stage

Emerging future trends	• Regulatory pressure: Increasing regulations and call for transparency along international supply chains (e.g. Better Gold Initiative, UN Directives, Responsible Business Initiative) are perceived to be required, as self-regulation implemented by companies is still at early stage and is not assessed as fulfilling for public's transparency and responsibility requirements • Self-regulation: Observed progress but at an insufficient pace – the understanding of potential commercial benefits gained through enhanced due diligence processes and higher transparency along their supply chain could be increased • Higher public and NGO activism: Increasingly more awareness of the issues and dangers related to commodity trading – however, NGOs have various views in terms of potential future impact. Some NGOs do not assess the pressure as strong enough to potentially cause company migration, while others acknowledge this migration risk and the potential loss of influence involved • Multi-stakeholder initiatives: A continuous 'trialogue' between the commodity sector, authorities and NGOs is required to address the issues related to integrity and environment – common regulations should be discussed and developed on a supranational level due to globalization of supply chains • Decarbonization and Paris agreement: Potential impact is expected on different levels: on the one hand in terms of global operations and logistics of commodity traders, and on the other hand, in terms of impact on asset classes and existing business models

C.3. Other stakeholders

Overarching observations	• Increasing efforts from the authorities and discussions with the private sector related to political stability of Switzerland • Increasing promotion of Swiss direct democracy and willingness/ability to have a constructive dialogue was named as one of the priorities for the authorities • Mixed views related to the competitive advantage of Switzerland vs. the UK: Brexit may result in deregulations and potentially increase the UK's competitiveness, while others believe Switzerland could benefit from the uncertainties related to Brexit
A. Economic Factors	• Switzerland: Established positioning is perceived to be mainly due to the existing 'cluster' around commodity trading, consisting of commodity traders, financing institutions, legal services, academia and research programs • The UK: Mentioned benefits from a relatively low cost of living and presence of asset-backed traders, e.g. oil majors, as well as a developed financial services industry • The US: In the past few years observed increasing migration of European players, which are looking to expand their presence in Houston, whereas New York offers access to financing institutions and hedge funds • Singapore: Stated growing importance, but not perceived as main competitor to established hubs, such as Switzerland or the UK, due to time zone • Dubai: Observed a lower presence of market participants, as compared to peer hubs
B. Competitiveness	• Switzerland: Perceived as attractive for talent due to its high quality of life and business friendly international environment; expected further increase in cost pressure on companies, especially related to administrative activities, which combined with overall high cost and shrinking tax advantage, may result in a potential reduction of the competitiveness and further offshoring of middle and back office functions • The UK: Brexit brings uncertainties into the commodity trading and financial sector • Singapore: Mentioned uncertainties in terms of regulation alignment (to European/US standards vs. Asian) • Dubai: Perceived as attractive for tax reasons; lower quality of life; uncertainties remain related to product quality, due to perceived lower standards of transparency and audit
C. Integrity and Environment	• Switzerland: Highlighted developed legislation in specific asset classes (e.g. agriculture and gold), offering security and quality to the end customers and other industry stakeholders; perceived increasing high public and NGO pressure, which in turn could be transferred into political initiatives, brings insecurity to companies and potential questioning of Switzerland's liberal image

Emerging future trends	• Higher public activism: Expected increasing activism and additional 'business-critical' initiatives, which may result in uncertainties related to Swiss regulatory framework; Swiss authorities should regain the trust of the private sector, for which a constructive multi-stakeholder dialog is required • Digitalization: Disruptive technologies are expected to have a significant potential to revolutionize the logistics and mid- and back-office functions, potentially bringing relevant cost reduction opportunities – however, commodity traders are not perceived as early adopters; potential uncertainties related to regulations remain and should be proactively embraced by the authorities in the respective hubs • International trade agreements: Participation in international networks and free trade agreements is perceived as critical for the competitiveness of a hub – being a relatively small country in terms of size, Switzerland should leverage the presence of international organizations and engage in the development of global standards for the commodity sector • Brexit: Some participants perceive Brexit as a threat for Switzerland, as London may implement deregulative measures to maintain its financial centre and increase its competitiveness (e.g. reduction of tax rates); others perceived it as an advantage for other hubs, as London is assessed as uncertain to be migrating to or setting up a new organization in

Appendix D. Metric definitions and data sources

D.1. Economic Factors

Assessment dimensions	Metric definition	Sources
Proximity to physical asset base		
Center(s) of production	Value of regional production volumes across asset classes, including oil, gas, coal, precious and base metals, and softs; Regions defined as +/- three adjacent time zones; oil includes crude oil, shale oil, oil sands, and NGLs (natural gas liquids); gas includes natural gas produced for Gas-to-Liquids transformation; non-precious metals include aluminum, copper, iron ore, lead, nickel, tin, and zinc; precious metals include gold, platinum, and silver; softs include bananas, cocoa, coconut, palm kernel oil, coffee, cotton, maize, natural rubber, soybean oil, rice, soybeans, sugar, tea, and wood pulp; in case of unavailable annual data for selected asset classes, adjacent years were used and projected with real GDP growth based on data from the International Monetary Fund (IMF)	BP Statistical Review, World Bank
Center(s) for consumption	Value of regional consumption volumes across asset classes, including oil, gas, coal, precious and base metals, and softs; Regions defined as +/- three adjacent time zones; oil includes crude oil, shale oil, oil sands, and NGLs (natural gas liquids); gas includes natural gas produced for Gas-to-Liquids transformation; non-precious metals include aluminum, copper, iron ore, lead, nickel, tin, and zinc; precious metals include gold, platinum, and silver; softs include	BP Statistical Review, World Bank

Assessment dimensions	Metric definition	Sources
	bananas, cocoa, coconut, palm kernel oil, coffee, cotton, maize, natural rubber, soybean oil, rice, soybeans, sugar, tea, and wood pulp; in case of unavailable annual data for selected asset classes, adjacent years were used and projected with real GDP growth based on data from the International Monetary Fund (IMF)	
Midstream and transportation assets	Oil storage capacity by region, regional bulk freight in volumes of goods loaded and unloaded (crude, petroleum products and oil, dry cargo) and pipeline network (gas, oil, and refined products); regions defined as continents	Central Intelligence Agency (CIA), UNCTAD, World Bank
Access to trading peer group		
Size of peer group		
Number of commodity traders	Number of commodity trading companies with office representation per hub with described trading activities in oil, gas, metal, agriculture, power, minerals, coal, and energy	S&P Capital IQ, Swiss Trading and Shipping Association (STSA)
FTE placement	Number of front-office FTEs, that is, staff with job titles: trader, trading manager/ director/assistant/analyst/expert/ specialist/support analyst, chief trader, head of trading, trade marketing executive, marketing, origination manager/director, marketing manager/director, sales and marketing specialist in the following industries: oil and energy, food production, mining and minerals; based in locations defined as respective hubs	Oliver Wyman proprietary data
Profitability	Profitability defined as national merchanting based on data from national balance of	Merchanting (gross margin): National balance of payments

Assessment dimensions	Metric definition	Sources
	payments (including adjustment of inter-state trade for the US)	Inter-state trade: US Bureau for Transportation
Access to financial and capital markets		
Broker volumes	Split of brokered volumes by hub, based on the top 10 brokers market share per asset classes (energy, oil and products, natural gas, power, and precious metals), covering a total of about 80 percent of the market.	Energy Risk (Top 10 brokers per asset class), Oliver Wyman proprietary data
# exchanges	Number of commodity exchanges per hub	FIA Annual Volume Survey
Exchange-traded volumes	Volume split of exchange-traded contracts value per hub, based on number of contracts, contract units (such as metric tons), annual average price of generic first month contract in US$; data includes physical commodity and financial instruments on physical commodities, such as futures. Data was adjusted to exclude duplications, such as options directly linked to futures (reproducing same numbers as the original contracts)	FIA Annual Volume Survey, Oliver Wyman proprietary data and analysis
Number of price markers	Number of price markers across different asset classes (metals, natural gas, petroleum assessment, agriculture, coal, and petrochemicals) per region, excluding global price markers	Platts, Oliver Wyman proprietary data and analysis
Trade financing	Total trade financing transaction values per hub in the sector ‘Commodities’	IJGlobal – Trade Finance Analytics

D.2. Competitiveness

Assessment dimensions	Metric definition	Sources
Stable and supportive environment		
Political		
Government stability	Perception of government instability based on the WEF Executive Opinion Survey. From a list of factors, respondents to the survey were asked to select the five most problematic factors for doing business in their country. The score corresponds to the responses weighted according to their rankings, that is 0 being the least problematic	WEF Competitiveness Report
Policy stability	Perception of policy instability based on the WEF Executive Opinion Survey. From a list of factors, respondents to the survey were asked to select the five most problematic factors for doing business in their country. The score corresponds to the responses weighted according to their rankings, that is 0 being the least problematic	WEF Competitiveness Report
Foreign ownership	Prevalence of foreign ownership: WEF Executive Opinion Survey, based on the question: 'In your country, how prevalent is foreign ownership of companies? [1 = extremely rare; 7 = extremely prevalent]'	WEF Competitiveness Report
Anti-corruption	Perception of corruption based on the WEF Executive Opinion Survey. From the list of factors, respondents to the survey were asked to select the five most problematic factors for doing business in their country. The score corresponds to the responses weighted according to their rankings, with 0 being least problematic	WEF Competitiveness Report

Assessment dimensions	Metric definition	Sources
Legal		
Property rights	Property rights: WEF Executive Opinion Survey with the question: 'In your country, to what extent are property rights, including financial assets, protected? [1 = not at all; 7 = to a great extent]'	WEF Competitiveness Report
Judicial independence	Perception of judicial independence: WEF Executive Opinion Survey, with the question: 'In your country, how independent is the judicial system from influences of the government, individuals, or companies? [1= not independent at all; 7 = entirely independent]'	WEF Competitiveness Report
Fiscal, macro- and microeconomics		
Market size	Market size overall WEF score, based on four sub-metrics (domestic market size index, foreign market size index, GDP (PPP), and exports as percentage of GDP)	WEF Competitiveness Report
Tax offsets for commodity traders	Corporate income taxes adjusted by tax breaks/offsets for commodity-trading companies/activities; for the US, an average effective rate was assumed at federal level for companies in following industries: chemical, farming/agriculture, oil/gas distribution, utility and adjusted by state-level income tax of Texas state, given that most US commodity traders are based in Houston; Switzerland – assuming the canton of Geneva tax rate; Singapore – assuming qualification for Global Trader Program; Dubai – assuming no engagement in the production of oil and gas or extraction of other natural resources in the United Arab Emirates	PWC Worldwide Tax Summaries, Deloitte Corporate Tax Rates 2017, Reuters, National legislations

Assessment dimensions	Metric definition	Sources
Productivity	Perception of pay and productivity: WEF Executive Opinion Survey, with the question: 'In your country, to what extent is pay related to employee productivity? [1 = not at all; 7 = to a great extent]'	WEF Competitiveness Report
Efficient setup and support structure		
Attractiveness for talent		
Wages	Average salary of senior, mid-level and junior levels of asset backed and independent trading houses; compensation data excl. variable compensation, such as bonus, due to firm-level variations (deferrals and equity)	Oliver Wyman proprietary data
Cost of living	Mercer Cost of Living city rankings: comparison of price levels among the hubs in 10 categories (food at home, alcohol and tobacco, domestic supplies, personal care, clothing and footwear, home services, utilities, food away from home, transportation, and sports and leisure)	Mercer Cost of Living underlying data
Private tax rates	Private income taxation, considering the maximum private tax rates applicable; data adjusted, assuming most efficient marital status and full potential deductions, such as 401K in the US	KPMG Individual Income Tax Rates Table, triangulation with online tax calculators to take into consideration potential efficiencies and deductions
Quality of living	Mercer Quality of Living city ranking: comparison of six dimensions, excluding duplications with other metrics, for example, education, housing and real estate (socio-cultural environment, medical and health considerations, public services and transport, recreation, consumer goods, natural environment)	Mercer Quality of Living underlying data

Assessment dimensions	Metric definition	Sources
Hiring and firing practice	Perception of hiring and firing practices, based on the WEF Executive Opinion Survey, with the question: 'In your country, to what extent do regulations allow flexible hiring and firing of workers? [1 = not at all; 7 = to a great extent]'	WEF Competitiveness Report
Higher education and training	Higher education and training overall WEF score, based on eight sub-metrics (secondary education enrollment rate, tertiary education enrollment rate, quality of the education system, quality of math and science education, quality of management schools, internet access in schools, local availability of specialized training services, extent of staff training)	WEF Competitiveness Report
Infrastructure		
Real estate	Average office rental price per cities: for Switzerland: Geneva and Zurich; for UAE: Dubai; for US: New York (no available consistent data for Connecticut and Houston); for UK: London	Cushman & Wakefield
Technological readiness	Technological readiness overall WEF score, based on seven sub-metrics (availability of latest technologies, firm-level technology absorption, FDI and technology transfer, internet users, fixed-broadband internet subscriptions, internet bandwidth, mobile-broadband subscriptions)	WEF Competitiveness Report
Availability of financial services	Perception of the availability of financial services based on the WEF Executive Survey, with the question 'Does the financial sector in your country provide a wide variety of financial products and services to	WEF Competitiveness Report

Assessment dimensions	Metric definition	Sources
	businesses? [1 = not at all; 7 = provides a wide variety]'	

D.3. Integrity and Environment

Assessment dimensions	Metric definition	Sources
Conduct		
Transparency		
Audit and reporting	Perception of the strength of auditing and accounting standards, based on the WEF Executive Opinion Survey, with the question 'In your country, how strong are financial auditing and reporting standards? [1 = extremely weak; 7 =extremely strong]'	WEF Competitiveness Report
Human Rights policies	Political rights and civil liberties per hub, based on the Freedom House index, which uses a number of sub-metrics: political rights, civil liberties, political pluralism and participation, functioning of government, freedom of expression and belief, associational and organizational rights, rule of law, personal autonomy, and individual rights	UN Agency, underlying data from Freedom House
Existence of Health Safety and Environmental (HSE) policies	Number of ratified International Labor Organization conventions, consisting of fundamental, governmental, and technical conventions per hub	International Labor Organization
Financial crime		
Anti-Money Laundering	Score in Basel AML Index that includes five sub-metrics (money laundering/terrorist financing risk, corruption risk, financial transparency and standards, public transparency and accountability, and political and legal risk)	Basel Institute on Governance
Rogue trading	Number of cases per hub out of the top 50 rogue cases by trading loss	Oliver Wyman proprietary data and analysis
Human rights		

Assessment dimensions	Metric definition	Sources
Working hours	Average number of working hours by hub	World Bank
Workers' rights	Level of workers' rights violations per hub, based on the International Trade Union Confederation Global Workers Rights Index	International Trade Union Confederation, Global Workers Rights Index
Public initiatives		
By NGOs, public or government		
Payments	Number of initiatives related to transparency of payments, business integrity, and anti-corruption	EITI, OECD, NGOs, Interviews, Oliver Wyman proprietary data and analysis
Human rights	Number of initiatives related to human rights	OECD, NGOs, Interviews, Oliver Wyman proprietary data and analysis
Environment	Number of initiatives related to environment	OECD, NGOs, Interviews, Oliver Wyman proprietary data and analysis
By industry		
Payments	Number of industry-led initiatives on payments, business integrity, and anti-corruption	Interviews, Company websites, Oliver Wyman proprietary data and analysis
Human rights	Number of industry-led initiatives on human rights	Interviews, Company websites, Oliver Wyman proprietary data and analysis
Environment	Number of industry-led initiatives on environment	Interviews, Company websites, Oliver Wyman proprietary data and analysis

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