Investment banking centres since the global financial crisis: New typology, ranking and trends

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Abstract

Financial centres are central to contemporary capitalism, but research on their development has been impeded by methodological challenges related to data availability. This paper offers a new typology of financial centre activity. Based on the nationality of parent companies of financial service providers operating in a centre, and nationality of their customers, we distinguish between domestic, export, import, and platform activities. Secondly, we compile a unique dataset of investment banking deals worldwide, which allows us to apply the new typology and introduce the first ever ranking of top financial centres based on the actual investment banking activity conducted in these centres. Our findings confirm the dominance of New York and London as global financial centres, with New York focused on domestic, and London on export and platform activities. Our data also show that, overall, investment banking activity has fallen dramatically since 2007, with 60% of the decline concentrated in New York alone, and further 30% in Zurich, London, Frankfurt, Amsterdam, and Edinburgh combined. As a result, the dominance of investment banking by New York and London has diminished, contributing to a trend that predates the crisis, explainable by the increasing shares of Asian centres, with Tokyo and Chinese cities in the lead.

Keywords

Financial centres, investment banking, global financial crisis, New York, London

Introduction

Financial centres epitomise modern capitalism, acting as essential nodes in financial networks and as command centres of the global economy. In the aftermath of the financial crisis, many would expect a gradual shift of financial activity and power away from the US and Europe towards Asia (French et al., 2009; Wójcik, 2013). Yet, economic history shows that the map of financial centres changes slowly, and it takes major political upheavals, often wars, to redraw it (Cassis, 2010). As nearly a decade has passed since the collapse of Lehman Brothers triggered financial panic on a scale unseen since 1929, it is timely to evaluate the impact of the global financial crisis on the global landscape of financial centres.

Any empirical enquiry about financial centres, however, faces methodological challenges. How do we measure financial centre activity? How do we compare financial centres across space and time? How do we distinguish international centres from other types? Think for example about Hong Kong, Singapore and Tokyo. While they are all international financial centres, they are international in different ways and to a different degree. How do we conceptualise and measure these quantitative and qualitative differences? How do we appreciate and weight the idiosyncrasies of individual cases, while pursuing an analytical and global comparative perspective?

This paper offers a conceptual and empirical contribution to financial geography and interdisciplinary studies on the development of financial centres. Conceptually, we offer a new typology of financial centre activity, based on the nationality of financial service providers operating in a centre, and nationality of their customers. This enables us to distinguish between domestic, export, import, and platform activities, and provide insight into the nature of differentiation, competition, and complementarity in the world of interconnected and interdependent financial centres. Empirically, we develop a unique dataset of investment banking deals worldwide to calculate fees earned by banks and other firms providing investment banking services as well as their subsidiaries. These calculations allow us to rank investment banking centres and analyse the structure of their activities according to our typology. Considering that investment banking service providers were at the epicentre of the crisis (Wójcik, 2012), an analysis focused on investment banking offers insights into the dynamics of financial centres as a whole, as well as the landscape of global finance emerging after the crisis (Christophers, 2016). Using data that depicts actual financial transactions conducted out of financial centres, we also extend studies that use data on office networks as a measure of potential for transactions (Taylor and Derudder, 2016; Derudder and Taylor, 2017).

Our typology of financial centre activity, as applied to investment banking, shows that domestic activity - whereby domestic providers serve domestic clients - dominates other types particularly in the large markets of the US and China. Export activity - with domestic providers serving foreign clients - is second in value terms, and is particularly common in European centres, influenced by the EU's single passport system. In contrast, the value of platform activity - with foreign providers serving foreign clients - has experienced slow decline. Whereas in London and Singapore, for example, platform activity used to dominate investment banking, by 2015 export activity rose to ascendancy. As a result, Hong Kong became the only major centre dominated by platform activities, a consequence of its hosting of non-Chinese providers serving clients in Mainland China. Meanwhile, Sydney was the world's only large centre dominated by import activity, reflecting its concentration of foreign banks serving Australian clients.

Our ranking confirms the primacy of New York and London as investment banking centres. While New York continues its global dominance in aggregate terms, due to the sheer size of domestic deals, it was surpassed by London in terms of export and platform activity. In both cities, however, total investment banking activity shrank dramatically since

2008. Total activity also contracted in Zurich, Frankfurt, Amsterdam and Edinburgh; in contrast to Paris, which proved relatively resilient in the wake of the crisis. For London we identify reversal of the decades-old Wimbledon effect, with British banks now more prominent in relation to foreign players.

Major growth in investment banking activity in both absolute and relative terms took place in Tokyo, Toronto and Chinese cities, with Beijing the leader. Evidence of shift of investment banking activity to Asia is discernible, although the landscape of investment banking centres in Asia looks far from settled.

In the next section, we reflect on existing metrics and classifications of financial centres and introduce our typology of financial centre activity. The section following explains how we operationalise the typology using a novel database on investment banking activities. An empirical section then introduces a ranking of financial centres based on investment banking activity with a further section applying our typology to leading centres and discussing the changing composition of investment banking activities in different cities and the factors driving this composition. A final section summarises results and draws implications.

Measuring and classifying financial centres

To derive a new typology of financial centre activity based on the nationality of financial service providers operating in a centre and the nationality of their customers, we start with a discussion of existing typologies, metrics and data on financial centre development.

Research into the geographical reach of services rendered by financial centres and the nationality of financial firms goes back a long way. Johnson (1976) distinguished between regional financial centres, serving customers in neighbouring countries, and international financial centres, serving a substantial part of the world. Reed (1981, 1989), in his seminal work, distinguished between host (Hong Kong, Singapore and 16 others), international (Amsterdam, Frankfurt, Paris, Tokyo and Zurich), and supranational centres (New York and London), noting that as we move from host through international to supranational centres, cities host more foreign banks and a larger number of headquarters of internationally expansive banks.

This focus on the presence of international banks has been persistent, partly because relevant data is relatively easy to obtain (Abraham et al., 1993; Liu and Strange, 1997; Choi et al., 2002). Companies advertise their international reach, particularly in finance, where global presence is a major competitive advantage (Clark, 2005). In contrast, data on volumes and values of actual financial deals are typically available publicly only at the country or consolidated company level, offering no detail on what companies actually do in the cities where they operate, which obscures the network structure of modern financial firms (Laulajainen, 2003).

A problem with relying on the presence of branches and subsidiaries when measuring corporate activity can be illustrated with the findings of Choi et al. (2002) who show that following a 30-year rise from 1960 to 1990, the number of foreign banks in financial centres world-wide dropped significantly by year 2000. As the authors explain, this does not mean that the actual level of international financial activity decreased. After all, the 1990s saw a surge in financial globalization. Instead, the declining number of banks was driven by consolidation in the financial sector through mergers and acquisitions.

The Global and World City (GaWC) research project has extended the conceptualisation of financial centres by recognizing the role of other business services working in tandem with finance, and by emphasizing collaborative relationships among financial centres operating through an international network (Sassen, 2001; Taylor, 2004). At the core of the GaWC methodology is the 'interlocking network model', in which the globalised financial and business services firms (FABS) act as the key ‘network makers’ connecting cities in a ‘world city network’. The model is operationalised by using data on the office networks of FABS firms to calculate connectivity between pairs of cities as a measure of potential flows of information, transactions and other activities. The overall position of a city in the network is calculated by aggregating its pair-wise connectivity with all other cities (Derudder and Taylor, 2016). Office networks of investment banks feature prominently in the GaWC research as the most strategic ‘network makers’ of all financial firms (Taylor et al., 2014).

The goal of our paper is to complement the GaWC research on financial centres by using data on actual transactions conducted out of these centres. An analogy in transport studies would be using data on road traffic to complement research on road networks. A related concern we seek to address is lack of clarity about the distinction between domestic and international activity in literature on financial centres. One example is the use of stock market capitalization or trading value as a measure of international financial centre activity (Kayral and Karan, 2012) even though most stock exchanges are dominated by stocks of domestic companies and a large part of trading is conducted by domestic traders and intermediaries.

To meet these objectives we offer a simple classification of financial centre activity based on the nationality of providers and clients (figure 1). We distinguish between foreign and domestic providers and foreign and domestic clients of financial services, with foreign and domestic defined by the relationship of the provider or client to the country in which a financial centre is located. Foreign providers located in a financial centre are defined as branches and subsidiaries owned by foreign parent companies. Domestic providers are financial services firms headquartered in a given financial centre or local branches and subsidiaries of domestically headquartered parent companies. Domestic clients are domestically-headquartered firms, and foreign clients are those headquartered abroad.

Export activity Domestic providers Foreign clients	**Platform activity** Foreign providers Foreign clients
Domestic activity Domestic providers Domestic clients	**Import activity** Foreign providers Domestic clients

Figure 1. A typology of financial centre activities based on the nationality of providers and clients

These definitions help us distinguish four types of financial centre activity. Services rendered by domestic providers to domestic clients represent domestic activity. Services provided by domestic firms to foreign clients represent export activity. Those provided by foreign firms to domestic clients are referred to as import activity. Finally, foreign providers serving foreign clients represent platform activity.

The use of the terms export and import is justified, since what we classify as import and export corresponds to their definition in the General Agreement on Trade in Services (GATS) documentation (WTO, 2017). Therein, a service provided within the territory of country A by a locally-established affiliate, subsidiary or representative office of a foreign-owned and controlled company to a client from country A is classified as delivered through 'commercial presence' and counts as country A's import (WTO, 2017; UN, 2010). Of course, there are other channels of international trade in services. A client in country A may receive services from abroad directly through telecommunications or postal infrastructure. As an illustration, a company in Sydney may be serviced by a Singapore-based bank that does not have a branch or subsidiary in Sydney. However, this is not included in our definition of import activity because it does not involve financial firms in Sydney. In other words, our focus here is not on a city's balance of trade in financial services, but on the activities of financial firms located in a city and the composition of these activities.

By focusing on provider-client relationships, our classification focuses on front-office activities rather than mid-office, back-office or offshore finance. This does not mean, however, that our typology is incompatible with non-front office activities. A data-processing centre of a bank set up as a branch or subsidiary abroad (e.g. in India) and serving the parent bank, could be seen as a type of platform activity (Kleibert, 2016). In a similar way, a shell company or a financial vehicle set up by a foreign parent and serving foreign clients could be seen as subsets of platform activity (Clark et al., 2015).

What cities would we expect to place in each category? Platform activity would involve the facilitation of inward and outward access for financial firms, eased by permissive regulation and low taxes on corporate and personal incomes and financial transactions. Import activity, by contrast, occurs when foreign financial firms set up subsidiaries or branches in a centre in order to serve the domestic market, rather than serve it from abroad. Locational forces here include the size of the domestic market, underdeveloped domestic financial firms, and difficulties in accessing that market from abroad due to various types of distance (physical, cultural and other) or regulatory barriers. Export activity, then, comes with easy outward access for finance, with regulation conducive to foreign expansion, and strong competitiveness of domestic financial firms, even in the presence of a relatively small domestic market. Finally, and in contrast, we would expect domestic activity to thrive in a large domestic economy, possibly combined with difficult and expensive access for foreign financial firms.

In summary, our typology offers a way of analyzing the size and structure of financial centres by representing each centre as a bundle of different types of activities based on the nationality of providers and clients. The typology clarifies the distinction between domestic and international financial activity, without oversimplification. In addition, the typology can reveal ways in which cities differentiate as centres of international finance. Indeed, while platform activity can be considered as the most international in nature, export and import activities can be seen as positioned along a continuum between domestic and international. Specializing in different types of financial activities may therefore require different kinds of institutional and other financial centre characteristics.Our typology also highlights the division of labour among financial centres. By definition export, import and platform activities exist by the virtue of international mobility of financial service providers. For example, the same US bank can be behind domestic in the US, import in Sydney and platform activity in Singapore. As such the typology can shed light on both competitive and collaborative aspects of financial centres (Faulconbridge, 2004; Wójcik, 2013).

Data and methodology

To analyse financial centre activity, we focus on investment banking and use data from a proprietary database managed by Dealogic, a specialist financial data provider headquartered in London, which collects information on capital market transactions from thousands of banks and other investment banking service providers such that it offers a comprehensive picture of this market globally. The data used here cover four groups of deals: issuance of equity, debt (corporate and government bonds), syndicated loans, and mergers and acquisitions (M&As). Specifically, we use data on 981,079 deals completed in the period from 2000 to 2015. What reflects the quality of the database is that it is routinely used by *The Economist*, *The Financial Times* and *The Financial News* in reports on developments in the industry, and by investment banks as a tool for evaluating changing market shares.

As such our data enable a comprehensive coverage of what the industry considers core investment banking activity, which focuses on primary capital market transactions. Our study does not cover trading, securitisation of loans or shadow banking activities. While these are major business segments of banks engaged in investment banking, and key to their participation in the global financial crisis, data available on these activities is of incomparably lower quality than the data on investment banking deals we use in this paper. We keep these limitations in mind while interpreting our results.

The Dealogic database specifies the subsidiary of an advisor to a transaction as well as its current parent company. For cases where the parent company has changed, we used M&A data, Nexis UK and press releases to obtain the correct historical record. The Dealogic database does not contain information on bank locations, so we hand-collected information on the location of operational headquarters from the websites of Bureau van Dijk's Orbis, Nexis UK, Bloomberg and individual company websites. To make the task of hand-collecting data efficient, we selected the top 500 advisor subsidiaries for each year/deal group combination, yielding a sample of 7,458 unique names. We then allocated these to their respective parents in each time period, with parents assigned according to control over a given subsidiary at the end of the year. This produced a sample of 3,558 advisor parents. This procedure allowed us to cover in excess of 99% of the value of transactions for all year-deal group combinations and therefore is expected to be very representative of financial centre sizes.

While the deal value – the value of funds raised through an equity, debt or syndicated loan issuance or the price paid in an M&A – is available for an absolute majority of deals covered by Dealogic, the fee paid by the issuer, target or acquirer to an investment bank(s) involved in a transaction is only available for approximately 20% of deals. As fees expressed as a percentage of deal value vary significantly, and can reach as much as 7% on equity issuance but fall below 0.5% on other transactions, estimation of missing fees was necessary for a meaningful aggregation of investment banking activity across the four deal groups. This estimation proceeded for each product category as follows:

- Fees as percentage of deal value for each group were modelled as a function of transaction size, industry and location of the client, other specific deal characteristics (e.g. distinguishing between initial and secondary public offerings, creditworthiness of the issuer of bonds or borrower, stock exchange where equity was listed), as well as a full set of time period fixed effects.

- The models were then used to predict percentage fees for deals that had missing data. In order to prevent outliers from skewing the results and ensure consistency between the distributions of hard data on deal pricing and its estimates, the distributions of estimates have been winsorized using the maximum and minimum values of the hard data on deal pricing (gross fee / deal value) as the cut off points for each product.
- Finally, percentage fees were multiplied by deal values to arrive at the value of fees in constant 2010 USD using deflators from the World Bank–World Development Indicators database. We have allocated fees to lead advisors working on each deal. In cases when more than one lead advisor was involved in a deal, we have apportioned the fee among all lead advisors according to their respective shares in the deal, if available from Dealogic, or otherwise on an equal basis.

In the analysis we focus on fees aggregated by cities as investment banking centres. Thus, the total activity of a centre is defined as the sum of fees earned by the sampled financial services firms from the four core investment banking activities under consideration. We credit fees only from transactions that have been processed by headquarters and subsidiaries of financial services firms located in a given financial centre. As an example, we would allocate fees from transactions processed by Goldman Sachs to

New York only if the New York headquarters of Goldman Sachs has been listed explicitly as the entity involved in the deal in the Dealogic data. Similarly, if Dealogic lists Goldman Sachs International (London based subsidiary of Goldman Sachs), we would credit fees earned by this subsidiary to London, rather than New York. Based on our typology, we then divide total activity into four groups. Fees earned by domestic advisors present in the city involving domestic clients represent *domestic activity*, while those earned by these advisors from foreign clients represent *export activity*. Fees earned by locally-headquartered subsidiaries of foreign-based advisers from domestic clients represent *import activity*, while those earned by these advisers from foreign clients constitute *platform activity*.

A new ranking of investment banking centres

Our unique data and an ability to attribute it to cities offers an opportunity to consider a ranking of financial centres based on core investment banking activity. Our goal is not to indulge in rhetoric of winners and losers, let alone consider cities at the top of the ranking as exemplars of urban success and the rest as laggards or imitators (Leon, 2017; Robinson, 2002). We present a ranking to reflect on the changing size of financial centre activity across cities and over time (with particular interest in the impact of the global financial crisis) as a logical precursor to analysis of the structure of this activity. We see our simple ranking, based on actual financial transactions, as a useful counterpoint to the influential Global Financial Centres Index, which is synthetic in nature and influenced largely by subjective assessments of competitiveness as seen by finance professionals (Z/Yen, 2016). Suborg recalls Friedmann referring to 'world cities' as 'basing points of global capital' (2011). Core investment banking activity, which covers key capital market transactions, seems to be useful way of capturing the relative power of these 'basing points'. The landscape of financial centres we analyse in this paper, including the ranking, is part of the urban footprint of capital markets. These markets will not cease if we stop analyzing the relative size of financial centres. We will simply understand them less well (van Meeteren et al., 2016).

Table 1. The top thirty investment banking centres based on total fees in 2015
[insert Table 1.]

Source: Authors based on Dealogic data.
Note: Data in constant 2010 USD.

The top thirty centres in 2015 represented over 90% of the global investment banking activity, with top five alone accounting for 68%, and top ten for 80% (table 1). New York has been number one every year since 2000, with a big margin over the rest. It also suffered the biggest decline since 2007 in absolute terms, with fees halved. However, it still commands over a third of the global activity. As analysis in the following section explains, this is mainly due to the sheer size of the US domestic capital market.

London came second, with activity diminished by a quarter since the crisis, but with a gain in market share. Tokyo came third with a nearly 40% increase in activity, and more than a doubling of market share since 2007. Japanese banks benefited from their low leverage on the eve of the global financial crisis, with the Japanese economy being relatively sheltered from the direct effects of the crisis. International investments by Japanese firms have also assisted. In a bold move, Nomura took over Lehman Brothers' operations in Europe and Asia, while Mitsubishi UFJ invested $9bn to buy 10% of Morgan Stanley's equity and created successful investment banking joint ventures with the American bank (Wójcik et al., 2018). Toronto moved from 7th to 4th position and doubled its share. With a relatively buoyant economy and arguably better financial regulation than in the US and the European Union, Canadian banks maintained much stronger balance sheets and quality reputations allowing them to expand internationally (Bordo et al. 2015).

Activity in Paris declined only slightly, lifting Paris from 8th to 5th position. Charlotte doubled its share and rose from 9th to 6th, due mainly to the merger of Bank of America and Merrill Lynch in 2008, and Wells Fargo Securities (the securities arm of Wells Fargo) moving headquarters from San Francisco to Charlotte in 2009. As a result, San Francisco, ranked 6th in 2007, did not make it to the top thirty in 2015. Frankfurt and Zurich both dropped out of the top five. Frankfurt lost half of its activity, and Zurich lost an unprecedented 75%, which brought the Swiss centre down from 3rd to 8th position. Amsterdam lost a top ten place, with a 60% decline in activity, part of a longer trajectory of decline (Engelen and Grote, 2009).

Swiss banking giants UBS and Credit Suisse were among the most overstretched and leveraged banks before the crisis and have since scaled down their operations and refocused on asset management (Straumann, 2018). These were due partly to a stern regulatory response from Swiss authorities, setting capital adequacy rules above international requirements (Carney 2016). ING, the leading Dutch bank, has also rolled back its international investment banking. Deutsche Bank held on to its global investment banking ambitions for a long time, but recently implemented major cost-cutting (Arons and Comfort, 2017). One possible reason for relatively good performance of Parisian banks is their capacity to shore up balance sheets with profits from domestic retail and commercial banking, given their market dominance in the absence of strong local and regional banks (Buell, 2016).

Not surprisingly, Mainland China centres enjoyed the fastest growth, although in a surprising order. Beijing rose from 35th to 9th position, confirming its position at the centre of Chinese finance (Yang and Yeh, 2013; Zhao et al., 2013). Shenzhen and Shanghai rose faster than Beijing but from a much smaller base, and are ranked 11th and 14th respectively. While Hong Kong climbed from 11th to 10th place, it lost a quarter of its activity and fell behind Beijing in the ranking. This suggests that its connections with and dependence on Western financial centres made it more vulnerable to the crisis. It also shows that the growth of the Chinese capital market has benefited Mainland Chinese centres more than Hong Kong. Singapore also declined in absolute terms, as did Kuala Lumpur, while Mumbai grew, but not as fast as centres in Mainland China.

The decline of investment banking since 2007 has been extremely concentrated. Six cities hosted 90% of the global decline, with 60% in New York alone, and further 30% in Zurich, London, Frankfurt, Amsterdam and Edinburgh combined. This pattern can be attributed to the declining activity of leading banks operating in these cities: UBS and Credit Suisse in Zurich, Deutsche Bank in Frankfurt, ING in Amsterdam, and Royal Bank of Scotland in Edinburgh.

In 2015 the top thirty ranking included eight US cities, compared to six in 2007; and eleven cities in Asia-Pacific time zone compared to eight in 2007. The number of cities from Europe declined from fifteen to ten. Thus, most likely for the first time in history, Asia-Pacific became the most represented time-zone in terms of the number of cities present among the top thirty investment banking centres of the world.

A new typology of investment banking centres

Having sketched the general trends in the size of investment banking centres, we now focus on the structure of investment banking activity within and across these centres, presented in the last four columns of table 1 and in figure 2.

[insert Figure 2.]

Figure 2. The structure of activity in the top thirty investment banking centres
Source: Authors based on Dealogic data.

By far the most common category is domestic activity. In 2015 domestic activity was the largest activity in eighteen centres. Not surprisingly the dominance of domestic activity is found in all centres in the USA. Total market capitalization of domestic US listed companies across all sectors in 2015 represented over 40% of the global market value and was larger than the combined figure for Chinese, Japanese, Eurozone and British companies (World Bank, 2017). Charlotte may host two of the leading securities firms in the world (BoAML and Wells Fargo Securities), but both are extremely US-focused. Even in New York, the most international of US centres, domestic activity accounts for 70% of total business. The sheer size of the domestic capital market, and a long US history of investment banking development, gives US advisors a major competitive advantage internationally (Wójcik et al., 2017). For the same reasons the US is an attractive but difficult market for foreign advisors (Geisst, 2012).

All three Mainland China centres are also primarily domestically focused, which is not surprising given the already large and fast growing Chinese capital market, including the second largest domestic stock market capitalization in the world (World Bank, 2017). While domestic providers of investment banking services have a short history and are relatively underdeveloped, Chinese authorities have carefully managed and controlled the access of foreign advisors to the market (Walter and Howie, 2011; Töpfer, 2017). The size of the domestic market also contributes to explaining the presence of Moscow, Mumbai and Tokyo in the group of domestically-focused centres. Regulatory barriers in all three centres and cultural barriers faced by foreign advisers, particularly in Tokyo, undoubtedly play a part as well (Shirai, 2018).

The other four domestically-focussed centres are Milan, Kuala Lumpur, Seoul and Melbourne. In Milan domestic activity in 2015 was only marginally larger than export activity. In contrast to Germany, UK, Switzerland, Netherlands, and even Spain (think of BBVA and Santander), there are no internationally significant Italian banks active in investment banking, and Italy's capital market is small and underdeveloped in relation to the country's economy (Wójcik, 2011). Kuala Lumpur and Seoul have never developed into major international financial centres, with significant barriers to both inward and outward provision of cross-border financial services, reflecting a low degree of financial market integration in East Asia. In Melbourne, domestic surpasses international activity by a narrow margin, but an increase in domestic activity over time is discernible and reflective of a more general role of the city as a financial centre smaller in size and more domestically focused than Sydney (Bain, 2007).

Export activity represented the largest segment of investment banking activity in ten centres. Eight of these were in Europe: Amsterdam, Edinburgh, Frankfurt, London, Paris, Santander, Stockholm and Zurich. In Zurich over 90% of activity was export-focused; in Amsterdam, Edinburgh and Frankfurt over 80%. In both Edinburgh and Santander export activity grew quickly from a very low base in 2000, a reflection of the international expansion of both RBS and Santander Bank, the latter prominent in Latin America in addition to European markets. The rise of RBS was much more dramatic than that of the Spanish bank, and fatal in consequences, but its remaining, albeit decimated, activity in Edinburgh sustains the status of the Scottish capital as an export-oriented centre (Waite, 2017). The presence of Amsterdam and Zurich, as established international financial centres in relatively small domestic markets, and that of Frankfurt, as Germany's international financial centre, should not be surprising (Schamp, 2018).

Paris, often treated in literature as a long-failed contestant of London in international finance (Cassis, 2010), and a centre serving primarily the French domestic market, actually draws nearly 80% of its fees from abroad, and on close inspection does so in equal measure from within and beyond the European time-zone. Paris is now the largest investment banking centre in the Eurozone, hosting the headquarters of BNP Paribas, Societe Generale, and Credit Agricole, all three among the top twenty investment banking service providers globally (Quennouëlle-Corre, 2018; Wójcik et al., 2018). The Paris case is also a powerful reminder how much European financial integration, including Euro currency, has internationalized Europe's financial centres, with the share of domestic activity falling between 2000 and 2015 in every single centre in the European Union. One of the cities where export surpassed domestic activity was Stockholm, whose institutions contributed to Nordic financial market integration, a subset of the broader European process.

London is a relative newcomer in the group of centres where export activity is larger than any other. Its export activity grew at the expense of import between 2000 and 2003 and platform activity from 2004 to 2015. By 2015 London became the largest centre for fees from export activity in the world in absolute terms, surpassing New York in this category for the first time this century. While foreign banks in 2015 accounted for less than half of the business done out of London, UK banks now do nearly 50% more business than in 2000. While investment banking at Edinburgh-based RBS was devastated by the crisis, London-based Barclays and HSBC weathered the crisis well. Barclays took over the North American business of Lehman Brothers, and HSBC expanded its presence in Asia. Smaller advisors, including Rothschild and Standard Chartered, also did well (Wójcik et al., 2018). In 2000 none of the top five banks operating in London was British. In 2015, Barclays and HSBC were the top two, followed by four US banks (JPMorgan, Goldman Sachs, Morgan Stanley and Citi), with UBS, Credit Suisse and Deutsche Bank in further positions.

Our typology thus helps us identify signs of a reversal of decades-old Wimbledon effect in London (Leyshon and Thrift, 1997). The phrase draws an analogy between the tennis tournament and the City of London as cases of the UK hosting activity dominated by foreign competitors. While London-based advisers serve a most geographically diverse set of clients, which has not become any less diverse since 2000, the city was no longer as dominated by foreign providers. This rising competiveness is unlikely the result of UK financial regulation becoming any less friendly or inviting to foreign financial firms, at least not in relation to regulatory environments elsewhere. Quite on the contrary, the City has opposed many regulatory proposals from Brussels, including the financial transactions tax. It is possible that foreign banks moved some of the activity they conducted from London into headquarter locations, while British banks did the same with activity they used to run from foreign subsidiaries. Arguably, new communication technology has reduced the need for overseas offices, while new regulation has made them more expensive. This explanation seems particularly plausible for banks from other EU member states. Swiss, German and Dutch banks were hit hard by the crisis and in order to cut costs might have repatriated some activity from London to Zurich, Frankfurt and Amsterdam respectively (Schamp, 2018; Straumann, 2018).

In Singapore, export activity also expanded, while import and, particularly, platform activity contracted. It seems that domestic Singaporean providers, with DBS in the lead, have matured to serve not only domestic but also foreign customers (Lai, 2018). On closer inspection of data, Singapore providers were active almost exclusively in Asia-Pacific, reflecting their focus on Mainland China and South East Asian clients.

Beyond Singapore, the only other non-European city where export activity dominates the other segments is Toronto, where the export share declined in the run-up to the crisis and expanded since. Well-capitalised Canadian banks, not affected directly by the crisis, in contrast to the downturn experienced by their US counterparts, have successfully entered the US market. Export activity also grew significantly in Tokyo, alongside import activity, the result of gradual opening of the Japanese market to foreign banks, with the joint venture of Morgan Stanley and Mitsubishi UFJ Financial Group a lead example. In absolute terms, Tokyo was the third largest centre of export activity, following London and New York, with majority of exports to markets outside of Asia-Pacific, underscoring the rising international scope of Tokyo as a financial centre (Shirai, 2018).

For 2015, Sydney was the only centre where import activity represented the biggest deals, beating domestic activity by a small margin, 37% to 35%. Other cities where import activity accounted for more than 10% of all activity in 2015 were Beijing, Hong Kong, Melbourne, Mumbai, New York, Shanghai, Singapore and Tokyo. The Australian financial system, though developed, is dominated by four commercial banks, operating in a relatively protected oligopoly, with limited foreign competition. These banks have never developed major investment banking activity, and Australia remains a significant importer of investment banking services. Recent international activity of Sydney-headquartered Macquarie, although important, is an exception that proves the rule (O’Neill, 2009).

Significant import activity in Beijing, Hong Kong and Shanghai, but not in Shenzhen, highlights the character of the three cities as gateways of Chinese finance, in contrast to a more exclusively domestic focus by Shenzhen (Lai, 2012). The parallel and complementary development of Beijing and Shanghai as Mainland China’s international financial centres is also exemplified by strategies of international banks. While UBS is the main foreign player in Beijing, Morgan Stanley uses Shanghai as its base. The presence of significant import activity in Mumbai, with Goldman Sachs as the major player, is certainly a reflection of limited domestic expertise in investment banking. Import activity used to dominate in Moscow, but no longer does, as domestic banks mature and Russian authorities impose stricter scrutiny of foreign financial institutions. New York and Tokyo offer access to markets so large that, despite stiff competition in the former and lingering regulatory and cultural barriers in the latter, foreign banks are still able to develop a significant volume of activity. In fact, in absolute terms, New York accounts for 60% of the world's import activity, with London and Tokyo accounting for more than 10% each, with Sydney ranked 4th.

While it is understandable that smaller US centres like Chicago, Charlotte or Atlanta hardly import any services, it may come as a surprise that neither do most European centres, including Paris, Frankfurt, Amsterdam, Stockholm and Milan. In our view, the reasons have to do with the power of the EU single passport rules. Once an investment bank is established and licensed in one member state, it can sell services across the EU. This means that companies in France, Germany, the Netherlands, Sweden, Italy, and elsewhere, can be served directly by advisors located in other EU member states. In practice, clients in these countries are often served directly out of investment banks located in London, which do not need a gateway in other European centres, although this may change in the wake of Brexit. Nearly 30% of fees earned by banks in London come from non-UK EU-based clients. This demonstrates how strongly the position of London as an investment banking centre depends on its access to EU markets (Hall and Wójcik, 2018).

Platform is as rare as import activity with Hong Kong the only city where fees earned by foreign advisors from foreign clients dominate other activities, with this only true if Mainland China clients and advisors are classified as foreign, as they are in figure 2. If

Mainland China companies and clients were classified as domestic, then by far the biggest activity in Hong Kong would be importing. In investment banking, it appears that Hong Kong functions as a platform centre, but one where foreign advisers focus almost exclusively on transactions involving clients from Mainland China. The more Hong Kong becomes subsumed within the People's Republic of China, the more we might think of it as an import centre. This analysis also highlights weaknesses of Hong Kong as a financial centre. Hong Kong supplies minimal investment banking services not involving Chinese clients; and, in a period when the fate of financial centres internationally seems to be tied closely to locally-headquartered institutions, Hong Kong does not have any major players on this stage. In this light, when HSBC ponders relocating headquarters from London to Hong Kong, the stakes for the 'fragrant harbour' are considerable (Knight and Wójcik, 2017).

In Singapore platform activity also constituted a majority segment in 2000, but has shown clear decline ever since. Similar downward trend in platform activity, as already discussed, is found for London, although in 2015 London hosted approximately 60% of platform activity globally. Features common to their role as platform centres for Hong Kong, Singapore and London include established rule of law, with strong enforcement of financial contracts, flexible regulation, and low corporate and personal income taxes particularly in the case of Hong Kong and Singapore (Wójcik et al., 2017).

To summarise our typology, let us take a look at the structure of investment banking centre activity at the global level, covering all cities available in our dataset, including the top thirty, as presented in figure 3. As in our analysis of individual centres, we see a preponderance of domestic activity, followed by export, with import and platform activities as the smallest categories. In contrast to dramatic changes at city-level, the global structure appears quite stable through time. We can, however, discern a slight decline in platform and rise in export activity. Singapore and London, especially, exemplify these trends, while Tokyo and Paris are also major contributors to the rise of export activity, with the Paris case suggesting the fate of investment banking centres may be tied increasingly to the fate of their domestic banks and other providers. The fact that the total of export, import and platform activity combined has not declined suggests that the level of internationalisation in core investment banking has not decreased since the crisis even though the absolute level of activity did (Wójcik et al., 2018).

[insert Figure 3.]

Figure 3. The structure of investment banking centre activities globally
Source: Authors based on Dealogic data.

Conclusions and implications

The goal of the paper was to propose a new typology of financial centre activity in order to shed light on the nature of specialization and differentiation between financial centres, and their evolution since 2000, with particular emphasis on the impact of the global financial crisis. We do this by offering a novel dataset on investment banking. Our typology and ranking of financial centres is based on the nationality of parent companies of service providers and their clients, and distinguishes between domestic, export, import and platform activities. As such, it improves on the rather crude dichotomy of domestic and international financial activity. Every financial centre hosts a bundle of different activities, and should be analyed as such. Our typology is simple and generic, allowing comparisons between finance and other economic sectors. It is also compatible with classifications of economic activity used in literature on foreign trade.

Our ranking of investment banking centres is, to the best of our knowledge, the first ranking of financial centres based on the actual value of fees from investment banking deals at the scale of the city. Our method overcomes the conundrum facing financial geography studies, whereby financial centre activity is gauged on the basis of branch presence, or the whole activity of a company is assigned to its headquarters. Rather, our ranking is based on revenues of financial firms, complementing existing rankings focused on financial centre connectivity and competitiveness. This is an important contribution because prior studies of the global hierarchy of financial centres often depict a financial topography that is flatter than it really is. In the Global Financial Centres Index, for example, Vancouver ranked 20th has a rating of 694, which does not seem so far from London's 795 (Z/Yen, 2016), even though actual financial activity in London may be tens of times larger than in Vancouver.

Our results confirm the dominance of New York and London as global financial centres (Fernandez et al., 2016; Wójcik, 2013). New York is certainly the investment banking capital of the world, accounting for over 50% of domestic and nearly 60% of import activity worldwide. While close to 85% of New York activity focuses on the US market, it is also the second largest export centre (after London), and the third largest platform centre in the world (after London and Hong Kong). London accounts for 60% of the platform activity, is the biggest export centre in the world, and the third largest import centre (after New York and Tokyo). The dominance of New York and London as investment banking centres, although massive, has declined, with their joint share of total fees down from 61% in 2000, to 55% in 2007, and 48% in 2015. This fall predates the global financial crisis, and is driven mainly by the rising shares of Asian centres, with Tokyo and cities in China in the lead, helped in the Americas by Toronto, and in Europe by Paris. All these changes have to be seen in the context of the overall decline in investment banking since 2007.

Extending these findings to a regional level, our findings offer implications on a continent by continent basis. In North America, the landscape of investment banking centres, the advances of Toronto notwithstanding, seems rather settled. In Europe, it has been shaken by notable declines in Amsterdam, Frankfurt, and particularly Zurich, contrasted with a relatively strong performance of Paris. London has undergone significant structural changes, with an intriguing reversal of the Wimbledon effect, which requires further investigation. Latin America, Africa and Middle East have no representation yet among the top centres of investment banking. In Asia, the landscape seems in a state of flux. Tokyo is in the lead, and probably much more firmly than is commonly recognized; however, Beijing, Shanghai, Shenzhen, and Mumbai are developing fast (and faster than Hong Kong or Singapore). New indigenous investment banking service providers emerge in Asia, serving growing and slowly integrating Asian capital markets. Strategies of leading global banks seem to confirm the unsettled character of Asian centres, with different banks developing hubs in different centres.

An obvious question looking ahead to the future of financial centres is the impact of Brexit on London as a global financial centre. While it is premature to assert anything conclusive, our results offer some hints. First, while some asset management activity, with back office in the lead, is forecast to migrate mainly to Dublin and Luxembourg, and some commercial banking is predicted to scatter across the continent, from Paris and Frankfurt to Amsterdam and Madrid, the only serious alternatives to London in investment banking are Paris, Frankfurt and Zurich. Of these, Paris is the largest centre, with the best performance since 2007, and much more accustomed to exporting financial services than many acknowledge (Quennouëlle-Corre, 2018).

Secondly, our results indicate that the French, German, Swiss and other European banks have already downsized financial activity in London. Note that US banks, now the biggest players in London next to British banks, have been most vocal about the threats of Brexit for the City, while European banks have remained relatively quiet. The US banks have invested in London as their base for at least three decades. Witness, for example, Goldman Sachs finishing the construction of its new European headquarters in central London. It seems that American banks, and Japanese banks in the second instance, have much more to lose from Brexit than their European counterparts, who can cover European markets from their home bases. Centres like Paris, stand to benefit from Brexit, although gains made by attracting business from London and the rest of the UK may be offset by a likely overall decrease in financial activity due to diminished European financial integration. In sum, Brexit opens the prospect of a more fragmented, though probably still London-led, landscape of financial centres in Europe (Hall and Wójcik, 2018).

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Table 1

	Fees [mil 2010 USD]		Global share		Rank		Structure of fees in 2015 [mil 2010 USD]			
	2015	Δ 2015 - 2007	2015	Δ 2015 - 2007	2015	2007	Domestic	Export	Import	Platform
New York	32,036	-31,975	36.6%	-9.3%	1	1	22,347	3,982	4,686	1,021
London	9,581	-3,079	11.0%	1.9%	2	2	1,150	4,135	847	3,449
Tokyo	8,194	2,283	9.4%	5.1%	3	4	3,966	3,209	980	39
Toronto	5,468	1,143	6.3%	3.1%	4	7	2,428	2,977	61	3
Paris	3,858	-212	4.4%	1.5%	5	8	799	3,047	4	9
Charlotte, NC	3,085	619	3.5%	1.8%	6	9	2,957	128	-	-
Frankfurt	2,850	-2,568	3.3%	-0.6%	7	5	483	2,247	12	108
Zurich	2,225	-7,302	2.5%	-4.3%	8	3	125	2,096	0	4
Beijing	1,679	1,458	1.9%	1.8%	9	35	1,097	259	314	8
Hong Kong	1,490	-581	1.7%	0.2%	10	11	166	144	156	1,024
Shenzhen	1,041	948	1.2%	1.1%	11	61	1,036	2	1	2
Sydney	966	-575	1.1%	0.0%	12	14	336	180	358	91
Amsterdam	913	-1,459	1.0%	-0.7%	13	10	165	747	-	1
Shanghai	745	685	0.9%	0.8%	14	77	639	15	91	1
Mumbai	705	173	0.8%	0.4%	15	19	468	25	210	2
Milan	652	273	0.7%	0.5%	16	26	323	318	1	11
Minneapolis, MN	565	364	0.6%	0.5%	17	36	542	22	-	-
Atlanta, GA	557	302	0.6%	0.5%	18	33	546	10	-	-
Stockholm	541	80	0.6%	0.3%	19	23	258	282	-	-
Seoul	476	142	0.5%	0.3%	20	30	425	24	26	1
Edinburgh	448	-1,137	0.5%	-0.6%	21	13	87	361	-	-
Singapore	385	-148	0.4%	0.1%	22	18	102	143	55	85
Santander	361	14	0.4%	0.2%	23	29	107	255	-	-
Melbourne	360	-16	0.4%	0.1%	24	27	175	119	61	5
Cincinnati, OH	317	161	0.4%	0.3%	25	47	312	5	-	-
Boston, MA	256	82	0.3%	0.2%	26	43	201	35	15	5
Pittsburgh, PA	255	85	0.3%	0.2%	27	45	245	10	-	-
Chicago, IL	252	-368	0.3%	-0.2%	28	17	181	49	21	2
Kuala Lumpur	247	-225	0.3%	-0.1%	29	22	197	39	10	1
Moscow	237	-83	0.3%	0.0%	30	31	211	11	14	1
World	87,492	-51,906					46,865	26,174	8,386	6,067

Figure 2

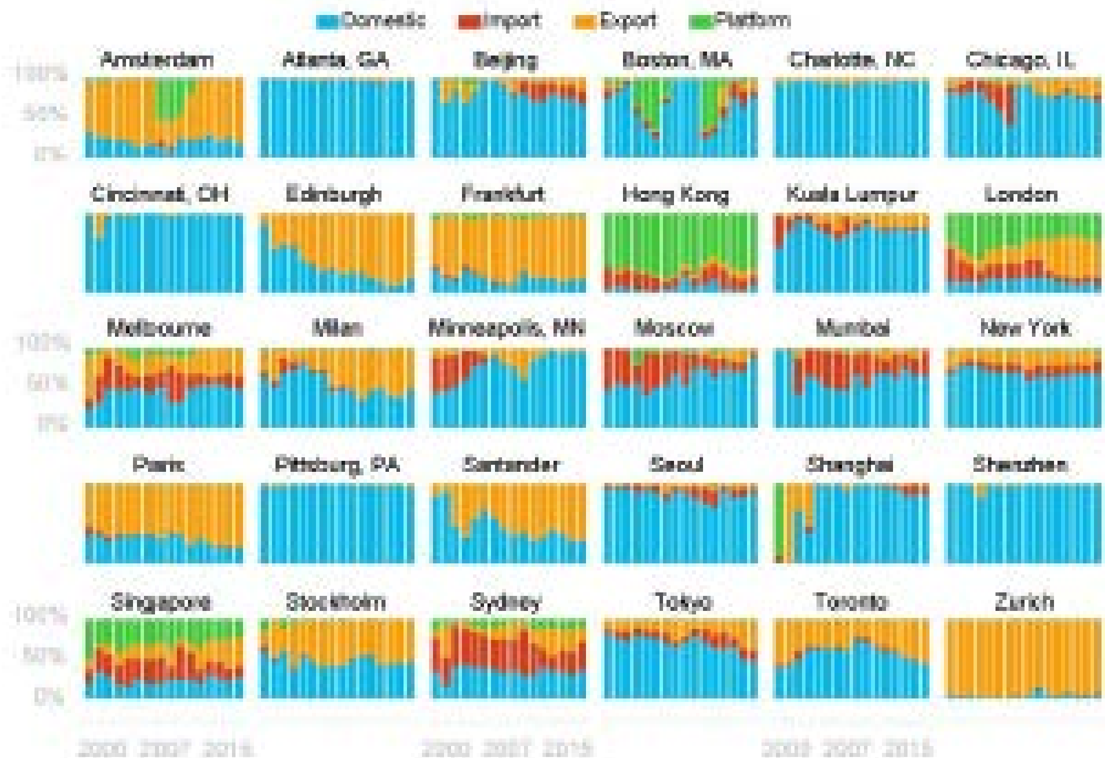
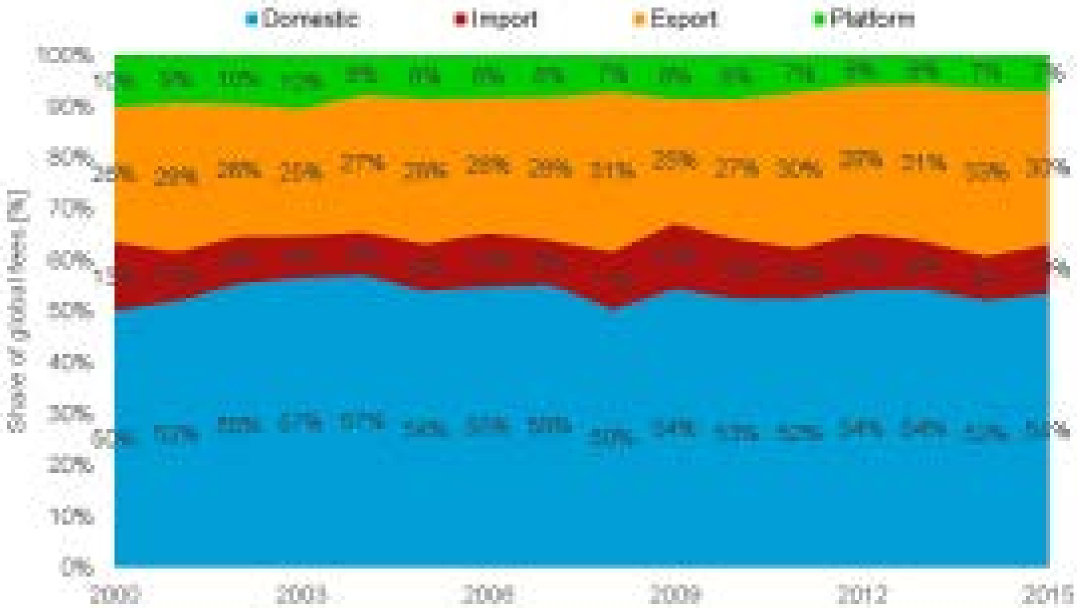

Domestic
Import
Export
Platform
Amsterdam
Atlanta, GA
Beijing
Boston, MA
Charlotte, NC
Chicago, IL
Cincinnati, OH
Edinburgh
Frankfurt
Hong Kong
Kuala Lumpur
London
Melbourne
Milan
Minneapolis, MN
Moscow
Mumbai
New York
Paris
Pittsburg, PA
Santander
Seoul
Shanghai
Shenzhen
Singapore
Stockholm
Sydney
Tokyo
Toronto
Zurich

Figure 3


Domestic
Import
Export
Platform
Share of global fees [%]
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2000
2003
2006
2009
2012
2015