



# Financial information, physical proximity and COVID: The experience of Asian sell-side equity research analysts

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## ABSTRACT

The need for physical proximity and face-to-face communication in financial information flows is contested. But the movement restrictions imposed across Asia during the COVID-19 pandemic, together with the elevated information needs as financial markets became stressed, provided the unique circumstances for a natural experiment to test the extent to which physical interaction is important in the origination and distribution of financial information. Drawing upon 70 interviews undertaken across Asia during 2021, primarily with sell-side analysts who act as information intermediaries in the financial ecosystem, this article provides evidence that physical proximity and face-to-face communication remains highly valued, particularly when accessing information embedded in informal local networks and originated through reciprocal client relationships. Analysts physically restricted from contacts at corporates and within their associated operating environments, reported a degradation of knowledge, especially versus more proximate competitors. The enforced physical separation also weakened previously strong social and reciprocal relationships with clients, even those co-located in the same city. Although these trends may be gradual and incremental rather than dramatic, they are persistent and self-reinforcing, and demonstrate the continued benefits of proximity and face-to-face interaction, with longer-term implications for financial geographies.

## 1. Introduction

The need for proximity in the origination and distribution of information is contested given advances in communication and information technologies. These, it is argued, have eroded the constraints of geography and have allowed other factors to become more influential in defining economic and financial geographies (Baldwin 2016; Cairncross 1998; O'Brien 1992; O'Brien and Keith 2009). Although this contradicts arguments in favour of physical proximity and face-to-face interaction (e.g. Gertler 2003; Grabher 2002; Storper 1997; Storper and Venables 2004) and has attracted trenchant criticism (e.g. Christopherson et al. 2008; Clark and O'Connor 1997; Martin 1994; Morgan 2004), it has proven difficult to demonstrate the extent to which the influence of proximity has been eroded or remains relevant given the inherent difficulties of empirically validating many of the theoretical mechanisms (Bassens et al. 2021; Malmberg and Maskell 2002; Short et al. 1996; van Meeteren et al. 2016). This is particularly the case for financial information flows given their complexity, the invisibility of many of these flows to external observers, and the relative paucity of evidence on the

behaviour of its users. But more fundamentally, it also reflects the lack of scenarios allowing comparison between permitted proximity and enforced physical separation.

The COVID-19 pandemic provided a unique opportunity to test the importance of proximity and more specifically, face-to-face communication, in financial information flows given the contrast between the full mobility prior to 2020 and the severe limitations on physical interaction implemented during 2020 and 2021. From the start of the pandemic in early 2020, for example, many Asian countries adopted restrictions including: limits on physical meetings, both social and business-related; prohibitions on entry by foreigners; enforced quarantines and lockdowns; and maximum permitted travel distances. These proved highly successful at constraining both mobility and face-to-face interactions, but coincided with a period of extreme investor uncertainty and stressed financial markets (Wójcik and Ioannou 2020). There was, therefore, heightened demand for information as investors considered worst-case scenarios and revised asset valuations accordingly.

The confluence of these two dynamics – restrictions on mobility and in-person interaction, and peak information demand – created the novel

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circumstances for a natural experiment to assess the impact of enforced physical separation on information flows. After all, if geography no longer influences access to information, then the restrictions should have had no significant impact on the ability of participants in financial markets to source and distribute required information during this difficult and turbulent time.

Specifically, this article investigates the impact of the COVID restrictions on a subset of highly specialised financial information intermediaries: sell-side equity research analysts. Equity markets are informationally intensive and are supported by a large ecosystem designed to address the information asymmetries between corporates issuing equity capital and investors seeking investment opportunities. Sell-side analysts (i.e. those working at brokerages and investment banks) play a critical role within this ecosystem by collecting and providing information to investors (the buy-side). As information intermediaries, they operate simultaneously within two geographies: that of information origination and collection (i.e. the sourcing of information for interpretation); and that of information distribution (i.e. its dissemination in regulated and codified formats to buy-side investors).

Sell-side analysts are responsible for providing investment recommendations and information on specific sets of listed companies (or in industry parlance, for “covering” these corporates), whether defined by sector or country. To undertake this role, they collect information from a wide variety of contacts. These include covered corporates, as well as relevant linked companies such as competitors, suppliers, and distributors. Other important sources include reciprocal relationships with clients, colleagues, and peers. Except for the regulated and codified releases from listed corporates, analysts primarily collect tacit, local, and unstructured information for interpretation and application in codified valuation models, investment recommendations, and written reports. This information requires high trust frameworks for its successful collection and transfer which, in turn, are facilitated by strong inter-personal relationships and face-to-face communication. This, however, creates a persistent challenge for analysts who need to develop and maintain such relationships across geographically dispersed and complex contacts. Furthermore, each analyst has a unique informational geography. Some, for example, will benefit from permanent proximity with their corporates and clients with physical access facilitated through co-location within the same city. In contrast, others will be remote from their information sources and will be more dependent on virtual platforms as well as periods of temporary face-to-face interaction through occasional and manufactured physical proximity (as per Grabher 2002).

Any investigation into the behaviour of financial professionals faces numerous methodological difficulties, including identifying and securing access to interviewees, as well as the associated power and knowledge asymmetries (Clark 1998; Robinson 2021). These challenges have constrained the empirical validation of many of the theories underlying financial and economic geographies (as per Short et al.’s (1996) “dirty little secret” of world cities research). This research, however, benefited from privileged access to, and ‘close dialogue’ (Clark 1998) with, sell-side analysts. One of the authors previously worked in Asian equity research in various roles including as the Director of Research in one of the region’s largest brokerages. This positionality facilitated access to interview participants and ensured more balanced knowledge symmetries during the interviews.

A total of 70 semi-structured interviews were conducted during 2021 (see Annex), and were guided by a predetermined set of questions, although each interview sequence differed according to the individual participant’s circumstances and experiences. Each interview typically lasted one hour which allowed the topic to be explored in detail. The majority of participants were sell-side research analysts (45) and research managers (7), primarily working at international investment banks and covering a range of sectors. A further 13 were from the buy-side (analysts and portfolio managers) with the remainder from corporate investor relations and sell-side equity sales.

The research is focused on Asia, partly to address the relative paucity

of research on its financial geographies compared to Europe and the United States, but mainly because the region adopted some of the most severe restrictions during the pandemic. By location, 30 of the participants were based in Hong Kong, 12 in Singapore, 7 in Mumbai and 5 in Shanghai. The remainder were distributed across Auckland, Jakarta, Kuala Lumpur, London, Seoul, Shenzhen, Sydney and Taipei. The high proportion of participants in Hong Kong and Singapore reflects the role these two cities play in the Asian geography of international investment banks. Hong Kong is the largest equity research centre for such banks in the region, although the majority of research undertaken in the city is on Chinese corporates. There are, however, border controls between Hong Kong and China. Singapore serves a similar nodal role for international investment banks within Southeast Asia.

This article provides evidence supporting arguments in favour of the continued need for physical proximity and face-to-face interaction in the origination and collection of financial information. The COVID restrictions on physical interactions resulted in a deterioration in the quality of information analysts could access from local informal networks, clients and corporates, including those co-located within the same city. Nearly all analysts reported a gradual but persistent degradation in their understanding of covered corporates, particularly those covering companies more embedded in the local context or in fast-moving sectors. This was especially acute for analysts undertaking cross-border coverage and resulted in the loss of client traction given their reduced informational value relative to other more proximate peers who could maintain face-to-face engagement with sources. Although these developments may be gradual in nature, they are nevertheless insidious and self-reinforcing, and as such, highlight the continued influence of physical proximity and face-to-face communication to the geographies of finance. This may also provide insights as to why financial activities are prone to agglomeration and the geographic “stickiness” of information and knowledge (Clark 2005; Gertler 2001 2003).

Moving forward, Section 2 introduces the contested debate on the role of physical proximity in financial information flows and the relevance of sell-side equity research, as an important information intermediary, to the debate. Section 3 identifies the information flows which were disrupted by the restrictions on mobility and face-to-face interaction, while Section 4 highlights the geographical consequences of these disrupted flows. Section 5 concludes.

## 2. To be close or not to be close

Financial markets are built on information (Clark and Monk 2013), but the role of geography in determining access to information is contested. On the one hand, there is substantial evidence from both financial economics and economic geography that access to information is geographically uneven. This is visible in the “local bias” inherent in many investment decisions (*inter alia* Bade & Walther 2021; Chen et al. 2010; Coval and Moskowitz 2001; Gehrig 1993), as well as spatial variations in corporates’ access to capital (Francis et al. 2022; Loughran 2008; Wójcik 2009). On the other hand, however, it is argued that improved communication and information management technologies have dramatically eroded the influence of geography on determining access to information. Some now see information as all-pervasive and as a result, argue that location should provide no informational advantage (Cairncross 1998; Friedman 2005; O’Brien 1992). This is further supported by arguments that the benefits of proximity to information sources, e.g. to corporates and local networks, have been reduced by regulatory prohibitions on the selective disclosure of material information (Bernile et al. 2019; Cowan and Salotti 2020).

These “end of geography” arguments build on the time-space compression witnessed over the last two centuries (Baldwin 2016; Warf 2011). But its application to the geography of finance has received much criticism (e.g. Christopherson et al. 2008; Clark and O’Connor 1997; Martin 1994; Morgan 2004). The main criticism is that it is based on a

flawed and simplified characterisation of information flows in financial markets. Although new technologies have had a significant impact on the communication and management of primarily codified information, e.g. real-time prices, valuation metrics, research recommendations, and corporate disclosures, these represent a small proportion of the total information spectrum for many financial products. As per [Asheim et al.'s \(2007\)](#) typology of different knowledge bases, most financial products are based on synthetic knowledge and have a higher reliance on face-to-face communication given the emphasis on client-tailored solutions, the importance of trust, and the tacit nature of the experience and know-how competencies required.

The argument that geography no longer matters, therefore, risks exaggerating the importance of codified information and excessively simplifies the complex private/public, formal/informal, local/global and codified/tacit information types on which financial products and markets are built ([Morgan 2004](#)). In fact, a scenario in which all relevant information is codified and readily accessible must be considered improbable given four factors: i) codified information, given its greater accessibility, rarely provides opportunities for market participants to achieve the informational arbitrage often required to deliver out-performance; ii) much needed information tends to have a short lifespan given the underlying dynamism of financial markets; iii) the costs of timely codification can be excessive; and iv) the value of codified information in isolation is often low without its subsequent fusion with tacit information and knowledge ([Amin and Cohendet 2004](#); [Bathelt et al. 2004](#)).

The continued importance of tacit and informal information and knowledge in fast-moving, uncertain, and spontaneous financial markets creates an information-intensive and -dense ecosystem, which can be referred to as 'buzz' ([Storper and Venables 2004](#)) or 'noise' ([Grabher 2002](#)). To an extent, this intensity reflects the polysemantic and nebulous nature of financial information: the importance and value of a single piece of information is often context specific with significant spatial and temporal dimensions, and a frequent ex-post realisation of its underlying value after fusion with other information, both codified and tacit ([Bathelt and Glückler 2011](#); [Heinemann 2014](#)). But more importantly, such an ecosystem remains typified by a high requirement for proximity between participants to facilitate the timely transfer of fluid (i.e. constantly changing), complex, context dependent, and predominantly tacit information within a high trust framework ([Evers et al. 2010](#), [Storper and Venables 2004](#)).

Trust is particularly important in the transmission of tacit and unstructured information. While codified information benefits from the rigour, structure and scrutiny of the codification process, the informal and individual nature of tacit information means that it is associated with an embedded degree of uncertainty and unreliability. Its recipients must decide whether to use or reject the information and this will invariably depend on the extent to which the source is trusted ([Holste and Fields 2010](#)). This is likely to be higher in long-standing and reciprocal inter-personal relationships, typified by a high frequency of interaction within informal or formal networks defined by shared institutional or social characteristics ([Holste and Fields 2010](#); [Peck 2005](#); [Smedlund 2008](#); [Vallance 2007](#)). Reciprocity through the mutual and beneficial exchange of information and shared expertise is a core element of such relationships ([Amin and Roberts 2008](#); [Amin with Thrift 2007](#)), while face-to-face interaction is the mechanism most likely to establish the required level of trust ([Storper and Venables 2004](#)). This is not to say that every interaction within an information network needs to be face-to-face, but that the accumulation of trust within such networks will be a function of the frequency of physical connection. This would be expected to be higher with co-located contacts and may explain why professional networks tend to be geographically entrenched within specific individual centres ([Bassens et al. 2021](#)).

It is unsurprising, therefore, that social and business networks play such an important role in many financial geographies, including determining the informational and knowledge advantages demonstrated by

specific centres ([Beaverstock 2002](#); [Clark 2002](#); [Lai 2006](#); [Thrift 1994](#); [Thrift and Leyshon 1994](#)). These networks not only influence access to information, but have specific spatially defined untraded interdependencies, e.g. accepted conventions, uncoded rules and working terminologies ([Storper 1997](#); [Wainwright 2015](#)). These distinctive characteristics also subsequently shape the interpretation, dissemination, and use of information ([Thrift 1994](#); [Ho 2009](#)). Although technologies can complement the information flows within and between such networks, e.g. by accelerating verification and the speed of transmission, they cannot fully replicate the benefits arising from co-location or face-to-face interactions ([Bathelt and Glückler 2011](#); [Morgan 2004](#)). In fact, the increased frequency of contact resulting from improved communication technologies may subsequently drive more face-to-face interactions ([Gaspar and Glaeser 1998](#)). This is particularly likely for participants in highly regulated environments, such as finance, who may choose not to disseminate certain information over electronic platforms to avoid surveillance and regulatory constraints.

These dynamics create self-reinforcing and localised information and knowledge clusters in which all actors contribute to the overall information mosaic, no single participant has a complete understanding of the situation, face-to-face interactions remain important, and just 'being there' provides significant advantages given the ability to access the relevant networks ([Gertler 2003](#)). Physical proximity within clusters provides participants with lower cost access to a full range of cognitively diverse participants with information transfer facilitated by a shared technical language, a common understanding and local circumstances ([Huber 2012](#); [Malmberg and Maskell 2002](#)). Furthermore, given many information exchanges are bilateral and reciprocal in nature, they are often important contributors to the co-production of new information and knowledge specific to the involved network and cluster ([Asheim et al. 2007](#); [Bettencourt et al. 2002](#)).

Actors remote to any cluster can access its information pool through connecting pipelines, with this infusion of "global pipelines" into the "local buzz" further developing a cluster's interpretation and innovation capabilities ([Bathelt et al. 2004](#)). They can also achieve temporary proximity by travelling to the cluster ([Grabher 2002](#)). But the risk is that remote participants will only ever be able to access a subset of the total available information through such mechanisms especially in products more grounded in the local, in geographies where 'buzz' may be more important, and in markets which lack the structures to codify information ([Clark and Monk 2013](#); [Lai 2006](#)). Furthermore, even if some tacit, informal or local information can be reproduced and shared across more distant locations, particularly if aided by organisational, institutional or other forms of temporary proximity ([Faulconbridge 2006](#); [Gertler 2003](#)), the requirement for the timely transfer of financial information, the frequent need to seek clarifications, and the importance of trust when determining the value of received information, will all tend to advantage physical proximity and more frequent face-to-face interaction.

It is recognised that different asset classes and financial products have different characteristics in terms of information requirements. [Clark and O'Connor \(1997\)](#) argued that asset classes exist on a spectrum of transparency reflecting information accessibility and the extent to which information can be scaled and applied to other geographies. These differences in informational content demonstrate the inherent difficulties of applying the geography of one financial product to others. Foreign exchange trading, for example, may be concentrated in London and New York as a result of technological advances and ubiquitous information ([Wójcik et al. 2017](#)), but other asset classes are often deeply rooted in their immediate local context, have a greater reliance on tacit, unstructured, and informal information, and are constrained by national regulations, which have assumed greater importance post the 2008 Global Financial Crisis ([O'Brien and Keith 2009](#)).

In the Clark and O'Connor taxonomy, equities are a translucent product with globally recognised properties but priced on local information. This creates an informationally intensive equities ecosystem with a large research component within asset managers (the buy-side),

and investment banks and brokerages (the sell-side). Sell-side equity research analysts play a sophisticated role in this ecosystem. Through the accumulation of information from spatially dispersed local sources, and its subsequent interpretation and distribution to buy-side clients, they address persistent information asymmetries between corporates issuing equity capital and investors seeking investment opportunities. To paraphrase [Clark and Monk \(2013\)](#), they act as centralised switch-points in equity markets by aggregating and directing information flows from, and to, relevant participants. Their actions also result in the accumulation and diffusion of knowledge within the broader equities ecosystem through their important codification role and central position in the spiral interaction between tacit and codified information and knowledge ([Nonaka 2007](#), [Nonaka and Takeuchi 1995](#)). This collection, interpretation, codification and distribution process reduces overall information search costs for equity investors, and it remains a critical component of the equities ecosystem.

Given the importance of sell-side equity research, there is a significant body of financial literature investigating the activity, including the extent to which analysts more proximate to their covered companies have advantageous access to information flows. Some studies have found evidence of locational benefits as seen in superior forecasting accuracy (*inter alia* [Bae et al. 2008](#); [Jennings et al. 2017](#); [Malloy 2005](#)), which may highlight the advantages of easier access to management ([Soltes 2014](#)). Reflecting the “end of geography” thesis, however, [Bernile et al. \(2019\)](#) argued that regulatory and technological developments had improved access to information flows in equity markets and had, therefore, eroded the historic more proximate forecasting advantage, at least in the United States.

Despite this substantive financial literature and the role of sell-side equity research in financial markets, the industry has received little attention in economic geography ([Hall 2007](#); [Wrigley et al. 2003](#) are rare exceptions). This may be because its integration within brokerages masks its location and activities, particularly in comparison with other knowledge intensive business and professional services, which are more visible to external observers and have, therefore, been subject to greater scrutiny (*inter alia* [Faulconbridge 2006](#); [Faulconbridge and Jones 2012](#), [Tether et al. 2012](#)). In our view, however, the status of sell-side equity research as the informational nexus of equity markets makes it an ideal sector to investigate the importance of proximity and physical connectivity in the origination and distribution of information, as revealed by the experienced impact of the COVID restrictions in comparison to the previously unrestricted environment.

### 3. Enforced physical separation and the disruption of information flows

Analysts operate within a complex, dynamic and time-sensitive information environment ([Fig. 1](#)), although this paper specifically focuses on the information sourced from corporates (and their operating environments) and clients. To produce their outputs, whether forecasts, recommendations or other services, analysts collect information from a variety of sources within both formal and informal networks, some distinct and others overlapping. Formal sources include corporate releases of material information as well as structured engagements with corporate management. Informal sources tend to provide more local and tacit information through ad-hoc and unstructured channel checks, industry experts, competitors and suppliers, as well as client interactions.

Each analyst has a unique informational geography and will use a variety of mechanisms to connect with sources and collect information depending on the nature of the specific relationship, including whether the source is co-located or remote, and the characteristics of the information collected and transferred. As outlined below, however, the COVID restrictions on physical face-to-face interactions limited analyst access to many of these sources as revealed through three mechanisms: i) the degradation of information flows from informal and local networks; ii) the reduced informational benefits arising from co-location with clients; and iii) the lower quality of information received from engagement with the management of covered corporates, including those co-located.

#### 3.1. Degradation of informal and local information flows

Although the relative importance of informal and local sources may differ across sectors, many companies have opaque earnings drivers or operate within constrained geographies. Their forecasting, therefore, requires the collection of significant amounts of local and informal information ([Karadas and Papakroni 2019](#)). These include: checks on distribution and sales channels to estimate revenue trends; engagement with suppliers and buyers to determine input costs, production volumes and demand; discussions with industry experts and local contacts to understand broader trends, including technological and regulatory; and meetings with competitors and buyers to verify competitive trends.

Analysts frequently described these informal and local sources as more important in the forecasting process than corporate disclosures (given their historic and standardised nature) or management

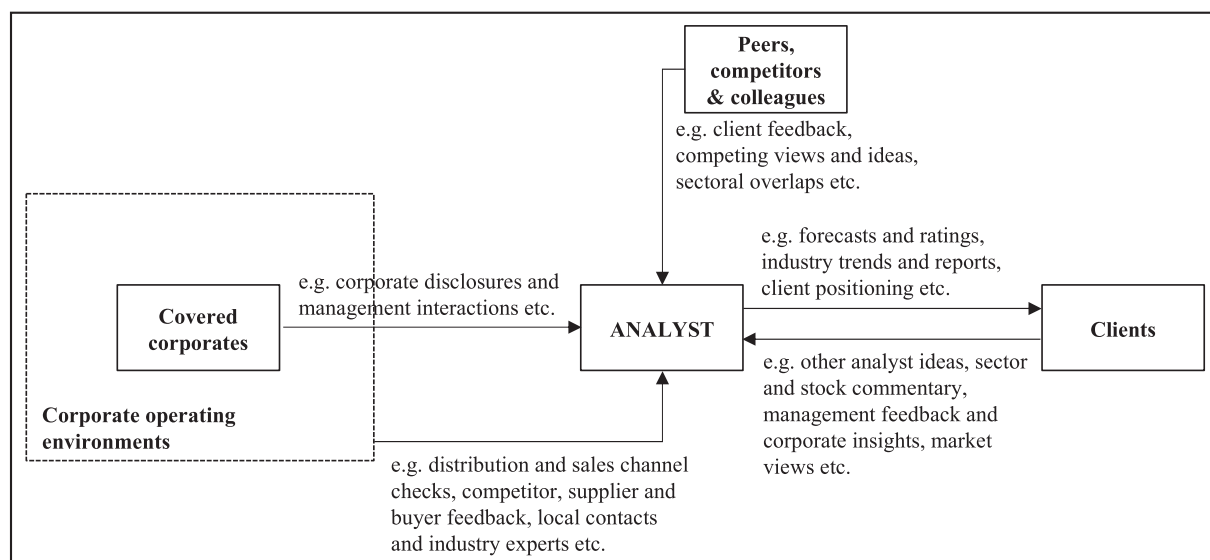


Fig. 1. The complex information environment for sell-side research.



engagement (given regulatory constraints and positive bias). As a Southeast Asian technology analyst stated, “the local information is incredibly important since you can’t be factually incorrect and you need to know what is the on-the-ground reality to forecast accurately” (IP12). This can even be the case in sectors dominated by large firms. An analyst covering Chinese internet companies, for example, noted that many of the country’s e-commerce trends had local origins and identifying them before they became national was important to forecasting accuracy (IP04). Similarly, a buy-side analyst believed that it was easier to trust an analyst’s views and offered information when s/he could demonstrate a “first-hand understanding” of a company’s situation (IP60).

The challenge is how to access such information. In some situations, new technologies have removed the need for physical proximity, especially when conducting channel checks. One buy-side analyst, for example, detailed how his firm used satellite imagery to estimate the output of power plants, the number of visitors to shopping malls and traffic on toll roads (IP66). Technologies have also reduced local barriers to information flows, particularly linguistic with automatic translation of local language media ensuring accessibility regardless of location.

But while new technologies may provide remote analysts with some visibility into a company’s local context, analysts still frequently referred to the need to source other types of information through a physical in-person presence. This was particularly the case when the information source was a local contact or industry expert. Such relationships were often described as difficult to manage given their one-way nature. In the past, information could be paid for but with tighter anti-bribery regulations, the incentives for such sources to engage with analysts have been diminished. Analysts, therefore, viewed the expertise required to identify the quality and relevance of a source, build and maintain the required inter-personal relationships, and extract the required information through personal obligations and closeness (as per Huber’s (2012) work on social proximity in personal knowledge relationships), as a highly developed skill which took a significant investment and face-to-face interaction to develop. They were unwilling to delegate such activity to other colleagues given the sensitive and personal nature of such relationships. This was even the case for analysts undertaking cross-border coverage when they had a local supporting resource. Many analysts in Hong Kong, for example, had onshore associates in China but were reluctant to use them to acquire information given their relative inexperience and lack of personal relationships with targeted contacts. Similarly, a Singapore-based analyst used his Jakarta-based associate for channel checks but not for engaging in-person with sources (IP17).

Prior to the pandemic, the need for analyst involvement in the collection of local information necessitated frequent access to contacts on an in-person basis. But after the COVID restrictions were imposed, it proved more difficult to source the same information remotely via virtual means. Not only was it often found to be harder to maintain existing relationships without in-person engagement, but the use of virtual communication channels resulted in a decline in the information disclosed by sources. Multiple analysts commented on how contacts were more reserved on the phone or in video-conferences versus face-to-face communication, reflecting fears that conversations on virtual platforms could be recorded given the unregulated and informal nature of the information transfer. A buy-side “grass-roots” researcher specialising in the retail industry, for example, described that prior to the pandemic she would extract information through direct face-to-face conversations with sales personnel in shops. During the pandemic, she had to cold-call potential contacts which proved far less effective, both in terms of securing respondents as well as the quality of information provided. She estimated that her success rate in engaging potential sources had fallen from approximately 60 % pre-COVID to less than 20 % during the pandemic (IP57).

Some corporates tried to address the emerging information deficit by using video platforms to showcase their products, operating environments, distribution channels, and connect suppliers and customers with

analysts. A number of real estate analysts, for example, highlighted how developers used such mechanisms to introduce their latest projects to aid the valuation and forecasting process. Although such attempts were welcomed given the circumstances, there was a persistent concern that they allowed corporates to control the information flow. Without the ability to personally collect and verify information, there was a persistent degree of distrust in the content received. As one analyst explained, “Real estate valuations are very local. But while they can show you how wonderful a new development is, they don’t show you what is just two streets away, or how much other development is in the area or how bad the traffic is getting in or out. That is why I need to visit in person” (IP09).

As such, reduced physical access to local information networks, and specifically, the inability to interact face-to-face with sources, as a result of the COVID restrictions was frequently cited as the most significant contributor to the degradation of analysts’ knowledge during the pandemic. It was recognised, however, that the rate of degradation varied across respondents. This reflected differences in sector coverage and analyst experience, as well as variations between countries in the severity and duration of imposed restrictions. For example, analysts covering sectors not dependent on local dynamics, e.g. energy, telecom and utilities, were less likely to cite the restrictions as an impediment to information collection. But the need for many analysts to access local contacts on a face-to-face basis to identify and extract relevant information for interpretation and forecasting, has longer-term geographical implications, as detailed subsequently.

### 3.2. Reduced informational benefits from co-location with clients

As with many knowledge intensive services (Bettencourt et al 2002), clients play a significant role in the production of sell-side research by acting as important information sources. One analyst claimed, for example, that clients accounted for “probably half our investment or research ideas” (IP05), while another considered some investors as so knowledgeable that she would alter her entire schedule if it ensured a face-to-face meeting with them (IP37). As such, analysts often differentiated between two types of client relationships: transactional and reciprocal. Whereas transactional relationships involved one-way information flow from the analyst to the client, reciprocal relationships were based on a higher degree of familiarity and trust, and were typified by more social interactions, greater informality, and a more balanced, dynamic, and accretive exchange of information.

There was broad recognition that reciprocal relationships took time to form given the importance of demonstrating value and establishing trust. It was also recognised that the process was aided by personal interaction with a pervasive view that they were easier to develop and maintain with co-located clients given the greater potential for more frequent face-to-face engagement. That is not to say new reciprocal relationships were impossible to form without such physical proximity since analysts were often able to leverage on existing institutional relationships within their brokerages and there was substantial previous experience of communicating over virtual platforms given time and cost pressures. But throughout the interviews, there was a consensus that higher-value reciprocal relationships required personal rapport to be established and that this was easier with a face-to-face connection, especially as such interactions allowed analysts to understand the specific needs and styles of individual clients more quickly. In addition, such relationships were easier to maintain virtually if grounded in earlier physical connections.

Many analysts indicated a hierarchy of client engagement mechanisms framed by the dynamic interaction of relative cost and perceived value, with value defined by the complexity of information to be transferred, the ability to persuade a client to the analyst’s view and the potential for reciprocal information exchange. Although it was recognised that not all information transfer necessitated a physical or even virtual connection, physical face-to-face meetings were frequently seen

as more effective than virtual platforms at transferring complex information, building trust and encouraging two-way engagement. In part, this reflected a general tendency of clients to be more reserved over virtual channels. As one analyst explained, “It just becomes more difficult to build that two-way interaction when you are not physically face-to-face. They will still ask questions but it is just more difficult and different” (IP56) while another noted, “The experience is different. I sometimes think they worry that I am recording them” (IP41). This concern was valid. Two investors, for example, noted that they were under strict instructions not to inform external parties of their investment holdings, stock interest and market views and as such, were always much more conscious about what they said when on a virtual platform which was being recorded, or could be (IP45; IP62).

As a result, there was an underlying and embedded geographic dimension to the nature of analyst-client relationships. Analysts located in Hong Kong and Singapore, for example, benefited from being co-located with a significant proportion of their clients and as such, more frequently emphasised the reciprocal informational aspects of such relationships. In contrast, those in more peripheral centres, e.g. Mumbai and Seoul, rarely enjoyed the benefits of acute client proximity and were, therefore, more comfortable with virtual based transactional relationships with limited two-way information transfer.

This distinction became more obvious during the COVID restrictions with analysts in Hong Kong and Singapore complaining that it was difficult to replicate the benefits of reciprocal relationships over virtual platforms. Many of them stated that the inability to physically meet clients, especially within social contexts, had gradually eroded existing relationships, limited information flows and reduced their overall understanding. As one analyst outlined, “I would often meet my clients for drinks or dinner after work and that was important to the relationship. But you can’t right now. Everywhere is closed at 6 pm in Hong Kong. So of course the client facing time is much less and that has changed the relationships I have” (IP26). This sentiment was widely shared across both Hong Kong and Singapore. In contrast, those in the peripheral centres generally reported no significant impact. As a Mumbai-based analyst noted, “It is ironic that my colleagues in Hong Kong and Singapore are complaining about the difficulties of maintaining client relationships and losing client traction without being able to meet them, while this is how we in India have always had to function” (IP07).

The COVID restrictions highlighted the advantages of client proximity, particularly in terms of facilitating the development of deeper relationships based on strong social connections and face-to-face communication. These improved analysts’ access to information. But although co-location with clients was viewed as beneficial to forming the high-trust relationships necessary for reciprocal and accretive information exchange, analysts accepted that the strength of client relationships was primarily determined by the quality and value of information provided. Given time constraints, clients were seen as highly selective on the relationships they were prepared to invest in and develop. As such, analysts recognised that client relationships would only become more reciprocal and progressively self-reinforcing when they had demonstrated their relatively superior informational value and as trust was built. As one analyst argued, “If I produce good research grounded in local context and information, then clients will want to listen to me. Clients will always follow the quality of the research wherever they may be” (IP11).

### 3.3. Lower quality engagement with corporate management

Corporates provide information to analysts through two mechanisms: disclosures of material events; and direct engagement with management. Such information flows are heavily regulated with strict prohibitions on the selective disclosure of price sensitive (market-moving) information (*inter alia* Agrawal et al 2006; Kross & Suk 2012). They function, therefore, within formal and structured frameworks. Corporate disclosures, for example, are simultaneously published on corporate

and exchange websites, while analyst interactions with management teams are frequently chaperoned by investor relations to ensure that only permissible information is disclosed and discussed.

There was no evidence that corporate disclosures were disrupted by the COVID restrictions. In fact, the consensus across analysts was that issuers had ensured consistency of such disclosures, particularly during the early stages of the pandemic when investor needs were elevated. As a Sydney-based analyst put it, “corporates did a really good job at making sure there was an informed market all the way through COVID ... they were very good at communicating [with investors and analysts], especially in terms of changes to [earnings] guidance and as a result, there were few surprises during reporting season” (IP13). It was also recognised that some corporates became more responsive to requests, while others addressed investors’ urgency for more information by increasing reporting frequency and/or providing new metrics.

But while disclosures act as the building blocks for subsequent valuation analysis, they are seen as low in the information hierarchy given their standardised, historic, and ubiquitous nature. They provide a baseline to work from but provide few inputs to the actual forecasting process. It is necessary, for example, to know a company’s audited financials at the start of any forecast period as well as historic trends. Forward guidance may also indicate how a company expects earnings to trend over the short-term. But to predict a company’s longer-term financial performance requires the collection and interpretation of many other different and non-standardised types of information, which are subsequently fused with these disclosures through the interpretation process.

Analysts engage directly with the management of covered corporates to collect such information. While such interactions should in principle provide no undisclosed material information given regulatory constraints, they were frequently viewed by analysts as an opportunity to create new and supplementary information. On the one hand, they allow known issues to be explored and for a better understanding of a company’s earnings drivers, both of which should improve forecasting accuracy. More importantly, however, there was a general recognition that such meetings, if managed appropriately, could result in the discovery of entirely new information and provide proprietary insights, at least for a period of time. As one analyst explained, “I know they know something I don’t but will find useful. Any meeting is my opportunity to try and identify that nugget and that extraction process is a skill” (IP43), a skill aided by inter-personal relationships. It was also often noted that “preferred analysts”, i.e. those with stronger management relationships, appeared to have an informational advantage over their peers. This was supported by a number of buy-side analysts who stated that they viewed sell-side analysts with demonstrably stronger relationships with management as possessing a superior understanding of a corporate than those without.

Prior to the COVID restrictions, in-person engagement with management was preferred. Revealing the benefits of face-to-face interactions (Storper and Venables 2004), this preference reflected a widespread recognition that such communication provided increased potential for new information discovery and more opportunities to clarify any ambiguity. One analyst quantified this informational quality gap between the different communication channels. Compared to a face-to-face meeting with management, she believed that a phone call typically resulted in “half the information loss” while even a meeting conducted via video-conference would only provide “75–80 % of the information possible face-to-face” (IP09).

There were few dissenters to the idea that face-to-face meetings with management were more valuable than other forms of engagement. Various, albeit intangible, reasons were cited for this, of which the most common was that in-person meetings provided an opportunity to “read” management or as one analyst put it, to “read between the lines” (IP06). Similarly, a number of analysts stated that they frequently learnt more from the small-talk surrounding a meeting than from the actual content discussed. This was not replicable over virtual platforms given “there is

no such thing as “off-the-record” on a Zoom call” (IP44). Another reason provided was that in-person meetings gave analysts a degree of control unavailable with the physical separation embedded in telephone or video-conference interactions. Some analysts noted that management on a telephone call or video-conference would put themselves on mute prior to answering a difficult question, leave the meeting while it was ongoing or be visibly unengaged. Such behaviours were more difficult when face-to-face. Furthermore, face-to-face meetings give greater opportunities for spontaneity or digression which, in turn, aid information origination.

Not all analysts saw value in engaging with management with the required frequency of such engagements a function of issuer size and sector. There was seen to be less need to engage with the management of a large company in a slow-moving sector (e.g. utilities, energy or telecoms) than with smaller companies in faster-moving sectors (e.g. consumer or internet). Furthermore, the need for, and nature of, such relationships reflected an analyst’s accumulated knowledge of the covered corporate. Analysts with new coverage tended to engage with management more frequently, while experienced analysts saw less urgency for such interactions. As one seasoned analyst put it, “there is no point in meeting them ... what can they tell or show me that I do not know already, could not access from other sources or could simply guess” (IP01).

But the analysts who valued management engagement, which were the majority, recognised that the quality of information received from such meetings was incrementally lower without the benefits of face-to-face interaction. Not materially on an individual engagement basis but sufficient to compound over time and impact an analyst’s knowledge as the pandemic continued. Consequently, the overall quality of information received from corporates during the pandemic was reduced as a result of the required shift to virtual platforms, despite efforts by management teams to engage regularly with the sell-side throughout the pandemic. As one Hong Kong-based analyst summarised, “My companies do not change significantly over three or six months ... what we knew in January [2020] was still valid in June [2020] ... but now I have not seen my companies for more than 18 months and I can feel it” (IP50).

#### 4. The geographical consequences of disrupted information flows

As with many revenue-generating finance professionals, access to information is critical to an analyst’s ability to provide value to clients and secure a relative advantage versus peers. A recurring theme was that clients were perpetually hungry for any new and incremental information, ideally before it was widely disseminated or before other market participants could access, interpret and act on it. As one analyst detailed, “Clients don’t want to be told what to buy or sell, they want information, interpretation and knowledge” (IP04), or as another commented, “We need to provide insights other brokers don’t have. It is not necessarily the depth or quality of our published research but simply that incremental data point other people do not have” (IP06). One investor, for example, started every meeting with a sell-side analyst with the simple questions “what’s new?” and “why does it matter?” (IP62). As such, if an analyst enjoys and is able to maintain an informational advantage versus peers, no matter how marginal, then that will be reflected in subsequent relative client traction.

The restrictions on face-to-face interactions and movement disrupted information flows, primarily through the three mechanisms detailed above. These resulted in nearly all participating analysts reporting a gradual but persistent degradation in their knowledge and understanding of covered corporates during the pandemic. But the rate of knowledge degradation was not consistent given differences in analyst location, company coverage and relative experience, with analyst location important given the lack of uniformity between countries in the length and severity of enforced restrictions.

The experiences of analysts in Hong Kong and Singapore were

particularly revealing in how the limits on travel and face-to-face interactions constrained access to information. Before COVID, Hong Kong provided a good balance between client co-location and access to mainland-based corporates, with Singapore holding a similar role in Southeast Asia. Although the COVID restrictions did not prevent analysts in both centres from developing forecasts and forming investment views, they did diminish the overall information pool available when undertaking such activities, especially when compared to analysts in other locations where face-to-face interaction with sources was still possible.

Hong Kong-based analysts, for example, not only found themselves physically excluded from the management and operating environments of their covered corporates in China, but also prevented from accessing the social networks with co-located clients, so important as an information source, due to the city’s onerous restrictions on in-person interactions. In contrast, at the time of the interviews in 2021, their competitors in Shanghai, Shenzhen and Beijing were frequently able to maintain physical face-to-face access to sources and were consequently able to provide the differentiated, local, and tacit information demanded by clients. The same theme was repeated by Singapore-based analysts undertaking cross-border coverage across Southeast Asia, although to a lesser extent given reduced client interest in the region and the more truncated nature of the travel restrictions. As one Hong Kong analyst noted, “The clients still demand the same thing as in the pre-COVID period: they want the local insight, they want to see what is going on on-the-ground, they want to be ahead of their competitors ... and that is something I am struggling with” (IP02). Similarly, a Singapore-based Southeast Asian consumer analyst recognised that she could not provide the local context and information demanded by clients given her inability to physically access her contacts and as such, had seen an “alarming” loss in client traction (IP44).

As a result, a persistent concern expressed by both Hong Kong- and Singapore-based analysts was that the quality of their offered products and information was likely to be seen by clients as inferior versus those of more proximate competitors with superior physical access to sources. As one analyst summarised, “I would caution against extrapolating the current circumstances to a world where some can physically see their corporates and clients, and others cannot. I think in that scenario, those who cannot will lose their relationships and traction because face-to-face interaction with corporates and clients always gives you an advantage” (IP05).

But while individual analysts found their access to information degraded by the lack of physical access and face-to-face interaction during the pandemic, it is notable that no buy-side participant described a complete breakdown in information flows. Although there were periods when the quality of received information was lower than expected, especially during the pandemic’s early frantic phases, the underlying complexity and dynamism of the equities ecosystem, and its associated information networks, meant that needed information could always be accessed in some form. This was described as “Hydra-like” by one investor as he highlighted that as the value of some sell-side analysts declined, others would appear and assume greater importance (IP45).

The overall ecosystem, therefore, adjusted quickly to the substantial informational deficits which emerged in Hong Kong and Singapore during the pandemic, traditionally two of the region’s more important information nodes. Some buy-side participants active in China reported that their preferred sell-side analysts had become dominated over the past two years by those based in Shanghai, Beijing and Shenzhen, at the expense of those in Hong Kong. Similarly, a Singapore-based hedge fund accelerated plans to locate analysts in China and a buy-side analyst at a large U.S. asset manager voluntarily relocated to Shanghai from Hong Kong to be physically closer to information sources, including sell-side research. As a result, many Hong Kong-based analysts noted that they had lost client traction during the pandemic while colleagues in mainland China had seen improvements as investors adjusted their information networks.

These outcomes highlight the persistent benefits arising from physical proximity and face-to-face engagement with corporates, clients and industry contacts. These may appear marginal or even invisible to external observers, but in the competitive and high frequency world of finance, any advantage, no matter how small, will become prized, self-reinforcing, and entrenched. In many cases, such face-to-face interaction can be derived through temporary proximity with the analyst travelling to access the information source. But analysts able to engage more frequently on a face-to-face basis with information sources, whether corporates, contacts or clients, would, over time, be expected to have access to an overall superior information pool than their competitors. This should, in turn, result in a higher quality product and greater value to clients.

It is this gradual but self-reinforcing process which may partially explain the tendency of financial activities to agglomeration and the geographic “stickiness” of information and knowledge (Clark 2005; Gertler 2001 2003). Although the world cities and financial geography literatures emphasise the disproportionate roles of relational proximity, networks, and agglomeration externalities (Sassen 2001; van Meeteren et al. 2016), the relevant spatial scales often remain contested (Bassens et al. 2021). This has been further complicated by the frequent presumption that information and communication advances allow relationships previously embedded in the local to be freed of geographical constraints (Baldwin 2016; Cairncross 1998; O’Brien 1992; O’Brien and Keith 2009). Our study into the revealed behaviours, working patterns and experiences of financial professionals, however, highlights the persistent territoriality of information and knowledge (Storper, 1997: 71–72). This reflects the continued importance of tacit, local, and unstructured information within finance and the demonstrable incremental benefits of face-to-face communication in its transfer. This chimes with the study of professional services in Brussels by Bassens et al. (2021) which found that the involved relationships tended to be more local than often presumed, with the metropolitan scale most relevant.

It also provides evidence supporting the importance of social and cultural networks within financial geographies (Beaverstock 2002; Clark 2002; Hall 2007; Ho 2009; Lai 2006; Thrift 1994). These provide the architectures for the distribution of uncoded information through high-trust and reciprocal relationships developed and maintained through regular face-to-face interactions. Some of the information within such networks may be subsequently codified and accessible over distance by external parties, as per Bathelt et al.’s (2004) “global pipelines”. But as revealed by the impact of the COVID restrictions on information flows, those active within the network would be expected to benefit from continued superior access to information given the characteristics of financial information and the advantages of face-to-face communication. And in turn, it is this persistent informational advantage which may contribute to the relative competitiveness of specific financial centres (Clark 2002).

## 5. Conclusion

As highlighted by Malmberg and Maskell (2002) and others, one of the challenges facing the debate on the role of proximity in financial information flows is the paucity of empirical evidence on the behaviour of the involved actors, particularly under contrasting scenarios. To a significant extent, this reflects the inherent difficulties of isolating specific causal factors and interdependencies, as demonstrated by the rarity of experimental methodologies in economic and financial geography (Wójcik 2022). But the severe restrictions imposed during the COVID pandemic, along with the surge in investor informational needs during a period of heightened financial stress, provided the novel circumstances for a unique natural experiment to assess the extent to which enforced physical separation impacted information flows. This was investigated through the collection and analysis of first-hand feedback from sell-side research analysts in Asia, who act as important financial information intermediaries within the equities ecosystem. This was facilitated by the

authors’ access to interviewees and the more balanced knowledge symmetries during the interview process, given previous industry experience and personal involvement in the relevant professional networks.

Our findings support existing arguments in favour of physical proximity and the continued importance of face-to-face interactions in the origination and distribution of financial information (*inter alia* Asheim et al 2007; Gertler 2003; Storper and Venables 2004). Although analysts use virtual and electronic mechanisms extensively in the transfer of lower-value and more codified information, face-to-face communication was frequently seen as more valuable when transferring tacit, complex, sensitive, unstructured and/or time-urgent information, especially if real-time clarifications were needed or if the exchange was informal, required a high degree of trust, or benefited from reciprocity. There was also widespread recognition that relationships grounded in the physical were easier to transfer to a virtual environment and survived longer. This has implications which go beyond the geography of finance, especially as it supports existing literature which position electronic virtual communication mechanisms as complements, rather than substitutes, for face-to-face interactions (Bathelt and Glückler 2011; Gaspar and Glaeser 1998; Morgan 2004).

The restrictions on movement and face-to-face interactions imposed during the COVID pandemic disrupted information flows and resulted in nearly all analysts reporting a gradual but persistent degradation in their understanding of covered corporates. This was particularly the case for analysts covering companies operating in constrained geographies and in more fast-moving sectors, and for analysts who had previously relied on reciprocal exchanges with co-located clients as an important information source. The relative benefits of face-to-face communication were further revealed through the difficulties faced by analysts undertaking cross-border coverage who found their informational disadvantage versus more proximate local analysts widened noticeably when domestic restrictions were eased ahead of those limiting international travel. This subsequently resulted in the loss of client traction by remote analysts versus local competitors, and the restructuring of investor resources and relationships to maintain access to higher quality information sources.

The continued significance of proximity and face-to-face communication for information flows has implications for the geography of financial centres. First, although it is often possible to access remote information sources on a face-to-face basis through temporary proximity (Grabher 2002), the revealed advantages of such engagements are magnified through a higher frequency of interaction. This may explain the benefits of permanent proximity as enabled through co-location. It may also explain why much information and knowledge remain ‘territorially sticky’, and the importance of social and cultural networks as structures for embedding informational advantages and influencing the relative competitiveness of financial centres (Clark 2002 2005; Gertler 2001 2003; Storper 1997; Thrift 1994). As such, the presumption that new technologies enable access to all required information regardless of location, risks under-estimating the continued role of tacit, unstructured, and informal information within financial markets, and the importance of face-to-face communication in its transmission. It also under-estimates the often substantial barriers to cross-border information flows within Asia given cultural, linguistic and regulatory frictions, as revealed during the pandemic. Given these frictions, it is unlikely that the multi-polar financial geography of Asia has become any more concentrated over recent years (Lai et al. 2020).

Second, it raises specific questions for the future hierarchies of Asia’s financial centres, especially the role of Hong Kong and Singapore as regional centres. As with many financial professionals, especially those in intermediary or advisory functions, analysts’ locations should optimise physical access to all required information sources, including both corporates and clients, whether domestic or foreign. Historically, Hong Kong and Singapore represented such optimal locations. But analysts in both centres found themselves significantly disadvantaged by the



COVID restrictions as a result of their physical exclusion from client social networks as well as from their corporates due to the cross-border travel prohibitions. In particular, Hong Kong's role and status has been challenged given the severity and duration of the city's restrictions. The difficulties of accessing information reported by analysts based in the city would indicate that Hong Kong has lost relevance as an information node or knowledge cluster versus the mainland Chinese centres. This risks eroding its traditional China gateway role for international banks (Jones 2020; Lai 2012) and accelerating the transformation of its status within the country (Wójcik et al. 2022), especially if Shanghai, Shenzhen or Beijing are able to maintain their current superior informational advantages.

In conclusion, this article demonstrates the continued influence of physical proximity and face-to-face communication in financial information flows, at least in translucent and opaque asset classes, including equities (Clark and O'Connor 1997). The argument that improved technologies have allowed the codification of all necessary information and its distribution to any location, simply does not reflect the underlying complexity of financial information flows, the continued importance of tacit, unstructured and informal information, and the persistent benefits of proximity and face-to-face communication, as demonstrated by the experienced consequences of the COVID restrictions. These benefits may not always be visible to external observers but to active participants, especially information intermediaries such as sell-side

equity analysts, they remain very real and as such, continue to play an important role in their specific geographies as well as the broader geographies of financial centres.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Data availability

The data that has been used is confidential.

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### Annex:. Interview participants

ID	Date	Type	Role	Location	Specialisation
IP01	26/01/2021	Sell-side	Analyst	Hong Kong	Telecom
IP02	27/01/2021	Sell-side	Analyst	Hong Kong	Industrials
IP03	27/01/2021	Buy-side	Management	Singapore	
IP04	28/01/2021	Sell-side	Analyst	Hong Kong	Internet
IP05	28/01/2021	Sell-side	Analyst	Hong Kong	Insurance
IP06	29/01/2021	Sell-side	Analyst	Sydney	Technology
IP07	30/01/2021	Sell-side	Analyst	Mumbai	Technology
IP08	02/02/2021	Sell-side	Analyst	Hong Kong	Internet / education
IP09	04/02/2021	Sell-side	Analyst	Hong Kong	Real estate
IP10	04/02/2021	Sell-side	Analyst	Hong Kong	Internet
IP11	06/02/2021	Sell-side	Analyst	Mumbai	Consumer
IP12	10/02/2021	Sell-side	Analyst	Singapore	Technology
IP13	15/02/2021	Sell-side	Analyst	Sydney	Telecom / Technology
IP14	15/02/2021	Sell-side	Management	Hong Kong	
IP15	16/02/2021	Sell-side	Analyst	Hong Kong	Financials
IP16	17/02/2021	Sell-side	Management	Shanghai	
IP17	19/02/2021	Sell-side	Analyst	Singapore	Consumer
IP18	23/02/2021	Sell-side	Analyst	Hong Kong	Technology
IP19	23/02/2021	Sell-side	Analyst	Mumbai	Healthcare
IP20	28/02/2021	Sell-side	Analyst	Mumbai	Financials
IP21	01/03/2021	Sell-side	Analyst	Hong Kong	Financials
IP22	09/03/2021	Sell-side	Management	Hong Kong	
IP23	14/03/2021	Buy-side	Analyst	Hong Kong	Consumer
IP24	16/03/2021	Sell-side	Management	Hong Kong	
IP25	22/03/2021	Sell-side	Analyst	Shanghai	Healthcare
IP26	24/03/2021	Sell-side	Analyst	Hong Kong	Transport
IP27	26/03/2021	Sell-side	Management	Hong Kong	
IP28	01/04/2021	Sell-side	Management	Hong Kong	
IP29	05/04/2021	Sell-side	Analyst	Kuala Lumpur	Consumer
IP30	07/04/2021	Sell-side	Analyst	Shanghai	Consumer
IP31	15/04/2021	Buy-side	Portfolio Manager	Sydney	
IP32	21/04/2021	Buy-side	Analyst	Auckland	Generalist
IP33	22/04/2021	Sell-side	Analyst	Taipei	Consumer
IP34	03/05/2021	Sell-side	Analyst	Hong Kong	Telecoms
IP35	05/05/2021	Sell-side	Analyst	Hong Kong	Generalist
IP36	13/05/2021	Sell-side	Analyst	Hong Kong	Real Estate
IP37	14/05/2021	Sell-side	Analyst	Hong Kong	Industrials
IP38	17/05/2021	Sell-side	Analyst	Seoul	Industrials
IP39	17/05/2021	Sell-side	Analyst	Seoul	Financials
IP40	18/05/2021	Sell-side	Analyst	Hong Kong	Internet
IP41	21/05/2021	Sell-side	Analyst	Sydney	Technology
IP42	25/05/2021	Sell-side	Analyst	Jakarta	Financials

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(continued)

ID	Date	Type	Role	Location	Specialisation
IP43	26/05/2021	Sell-side	Analyst	Mumbai	Healthcare
IP44	26/05/2021	Sell-side	Analyst	Singapore	Consumer
IP45	26/05/2021	Buy-side	Portfolio Manager	Singapore	
IP46	27/05/2021	Sell-side	Analyst	Taipei	Technology
IP47	03/06/2021	Sell-side	Analyst	Singapore	Industrials
IP48	04/06/2021	Sell-side	Analyst	Shanghai	Technology
IP49	08/06/2021	Sell-side	Analyst	Shanghai	Technology
IP50	16/06/2021	Sell-side	Analyst	Hong Kong	Consumer
IP51	22/06/2021	Sell-side	Analyst	Seoul	Transport
IP52	22/06/2021	Sell-side	Equity sales	Singapore	
IP53	23/06/2021	Corporate	Investor relations	Singapore	
IP54	29/06/2021	Sell-side	Analyst	Mumbai	Generalist
IP55	05/07/2021	Sell-side	Analyst	Kuala Lumpur	Consumer
IP56	09/08/2021	Sell-side	Analyst	Hong Kong	Industrials
IP57	09/08/2021	Buy-side	Analyst	Hong Kong	Consumer
IP58	10/08/2021	Sell-side	Management	London	
IP59	24/08/2021	Corporate	Investor relations	Mumbai	
IP60	27/08/2021	Buy-side	Analyst	Singapore	Generalist
IP61	27/08/2021	Buy-side	Management	Singapore	
IP62	09/09/2021	Buy-side	Portfolio Manager	Singapore	
IP63	28/09/2021	Sell-side	Analyst	Hong Kong	Generalist
IP64	01/10/2021	Buy-side	Analyst	Hong Kong	Internet
IP65	01/10/2021	Sell-side	Equity sales	London	
IP66	04/10/2021	Buy-side	Analyst	Hong Kong	Utilities
IP67	04/10/2021	Buy-side	Portfolio Manager	Shenzhen	
IP68	05/10/2021	Buy-side	Analyst	Hong Kong	Consumer
IP69	04/11/2021	Sell-side	Analyst	Singapore	Energy
IP70	16/11/2021	Corporate	Investor relations	Hong Kong	

## References

- Agrawal, A., Chadha, S., Chen, M., 2006. Who is afraid of Reg FD? The behaviour and performance of sell-side analysts following the SEC's Fair Disclosure Rules. *J. Busin.* 79 (6), 2811–2834. <https://doi.org/10.1086/508000>.
- Amin, A., Cohendet, O., 2004. *Architectures of Knowledge: firms, capabilities and communities*. Oxford University Press, Oxford <https://doi.org/10.1093/acprof:oso/9780199253326.001.0001>.
- Amin, A., Roberts, J., 2008. Knowing in action: beyond communities of practice. *Res. Policy* 37 (2), 353–369. <https://doi.org/10.1016/j.respol.2007.11.003>.
- Amin, A., Thrift, N., 2007. Cultural-economy and cities. *Prog. Hum. Geogr.* 31 (2), 143–161. <https://doi.org/10.1177/0309132507075361>.
- Asheim, B., Coenen, L., Vang, J., 2007. Face-to-face, buzz, and knowledge bases: sociospatial implications for learning, innovation, and innovation policy. *Environ. Plann. C: Govern. Policy* 25 (5), 655–670. <https://doi.org/10.1068/c0648>.
- Bade, M., Walther, M., 2021. Local preferences and the allocation of attention in equity-based crowdfunding. *RMS* 15 (8), 2501–2533. <https://doi.org/10.1007/s11846-020-00429-6>.
- Bae, K.H., René, R.M., Tan, H., 2008. Do local analysts know more? A cross-country study of the performance of local analysts and foreign analysts. *J. Financ. Econ.* 88 (3), 581–606. <https://doi.org/10.1016/j.jfineco.2007.02.004>.
- Baldwin, R., 2016. *The Great Convergence: information technology and the new globalisation*. The Belknap Press of Harvard University Press, Cambridge, Mass.
- Bassens, D., Gutierrez, L., Hendrikse, R., Lambert, D., Waiengnien, M., 2021. Unpacking the advanced producer services complex in world cities: Charting professional networks, localisation economies and markets. *Urban Stud.* 58 (6), 1286–1302. <https://doi.org/10.1177/0042098020908715>.
- Bathelt, H., Glückler, J., 2011. *The Relational Economy: geographies of knowing and learning*. Oxford University Press, Oxford <https://doi.org/10.1093/acprof:oso/9780199587384.001.0001>.
- Bathelt, H., Malmberg, A., Maskell, P., 2004. Clusters and knowledge: local buzz, global pipelines and the process of knowledge creation. *Prog. Hum. Geogr.* 28 (1), 31–56. <https://doi.org/10.1191/0309132504ph4690a>.
- Beaverstock, J.V., 2002. Transnational elites in global cities: British expatriates in Singapore's financial district. *Geoforum* 33 (4), 525–538. [https://doi.org/10.1016/S0016-7185\(02\)00036-2](https://doi.org/10.1016/S0016-7185(02)00036-2).
- Bernile, G., Kumar, A., Sulaeman, J., Wang, Q., 2019. Has local informational advantage disappeared? *Rev. Financ. Econ.* 37, 38–60. <https://doi.org/10.1002/rfe.1046>.
- Bettencourt, L.A., Ostrom, A.L., Brown, S.W., Roundtree, R.L., 2002. Client co-production in knowledge-intensive services. *California Manage. Rev.* 44 (4), 100–128. <https://doi.org/10.2307/41166145>.
- Cairncross, F., 1998. *The Death of Distance*. Orion Business Books, London.
- Chen, H., Gompers, P., Kovner, A., Lerner, J., 2010. Buy local? The geography of venture capital. *J. Urban Econom.* 67 (1), 90–102. <https://doi.org/10.1016/j.jue.2009.09.013>.
- Christopherson, S., Garretsen, G., Martin, R., 2008. The world is not flat: putting globalization in its place. *Cambridge J. Regions, Econ. Soc.* 1 (3), 343–349. <https://doi.org/10.1093/cjres/rsn023>.
- Clark, G.L., 1998. Stylised facts and close dialogue: methodology in economic geography. *Ann. Assoc. Am. Geogr.* 88 (1), 73–87. <https://doi.org/10.1111/1467-8306.00085>.
- Clark, G.L., 2002. London in the European financial services industry: locational advantage and product complementarities. *J. Econom. Geogr.* 2 (4), 433–453. <https://doi.org/10.1093/jeg/2.4.433>.
- Clark, G.L., 2005. Money flows like mercury: the geography of global finance. *Geografiska Annaler: Ser. B, Hum. Geogr.* 87 (2), 99–112. <https://doi.org/10.1111/j.0435-3684.2005.00185.x>.
- Clark, G.L., Monk, A.H.B., 2013. Financial institutions, information, and investing-at-a-distance. *Environ. Plann. A: Econ. Space* 45 (6), 1318–1336. <https://doi.org/10.1068/a45286>.
- Clark, G.L., O'Connor, K., 1997. The informational content of financial products and the spatial structure of the global finance industry. In: Cox, K.R. (Ed.), *Spaces of Globalization: Reasserting the Power of the Local*. Guilford Press, New York, pp. 89–114.
- Coval, J., Moskowitz, T., 2001. The geography of investment: informed trading and asset prices. *J. Polit. Econ.* 109 (4), 811–841. <https://doi.org/10.1086/322088>.
- Cowan, A.R., Salotti, V., 2020. Anti-selective disclosure regulation and analyst forecast accuracy and usefulness. *J. Corporate Finance* 64, 101669. <https://doi.org/10.1016/j.jcorpfin.2020.101669>.
- Evers, H., Gerke, S., Menkhoff, T., 2010. Knowledge clusters and knowledge hubs: designing epistemic landscapes for development. *J. Knowl. Manage.* 14 (5), 678–689. <https://doi.org/10.1108/13673271011074836>.
- Faulconbridge, J.R., 2006. Stretching tacit knowledge beyond a local fix? Global spaces of learning in advertising professional service firms. *J. Econom. Geogr.* 6 (4), 517–540. <https://doi.org/10.1093/jeg/lbi023>.
- Faulconbridge, J., Jones, A., 2012. *The geography of management consultancy firms*. In: Clark, T., Kipping, M. (Eds.), *The Oxford Handbook of Management Consulting Firms*. Oxford University Press, Oxford, pp. 225–243.
- Francis, B., Hasan, I., Waisman, M., 2022. The geography of information: evidence from the public debt market. *J. Econom. Geogr.*, early access Mar 2022, <https://doi.org/10.1093/jeg/lbac002>.
- Friedman, T.L., 2005. *The World is Flat: A Brief History of the Twenty-First Century*. Farrar, Strauss and Giroux, New York.
- Gaspar, J., Glaeser, E.L., 1998. Information technology and the future of cities. *J. Urban Econom.* 43 (1), 136–156. <https://doi.org/10.1006/juec.1996.2031>.
- Gehrig, T., 1993. An information based explanation of the domestic bias in international equity investing. *Scand. J. Econom.* 95 (1), 97–109. <https://doi.org/10.2307/3440137>.
- Gertler, M.S., 2001. Best practice? Geography, learning and the institutional limits to strong convergence. *J. Econom. Geogr.* 1 (1), 5–26. <https://doi.org/10.1002/9780470755716.ch22>.
- Gertler, M.S., 2003. Local knowledge: tacit knowledge and the economic geography of context, or the undefinable tacitness of being (there). *J. Econom. Geogr.* 3 (1), 75–99. <https://doi.org/10.1093/jeg/3.1.75>.

- Grabher, G., 2002. Cool projects, boring institutions: temporary collaboration in social context. *Regional Stud.* 36, 205–214. <https://doi.org/10.1080/00343400220122025>.
- Hall, S., 2007. Knowledge makes the money go round: Conflicts of interest and corporate finance in London's financial district. *Geoforum* 38 (4), 710–719. <https://doi.org/10.1016/j.geoforum.2006.11.023>.
- Heinemann, T., 2014. Organisational geographies of finance: opening the black box of global investment banks. *Geogr. Compass* 8, 25–37. <https://doi.org/10.1111/gec3.12109>.
- Ho, K., 2009. *Liquidated – an ethnography of Wall Street*. Duke University Press, Durham.
- Holste, J.S., Fields, D., 2010. Trust and tacit knowledge sharing and use. *J. Knowl. Manage.* 14 (1), 128–140. <https://doi.org/10.1108/13673271011015615>.
- Huber, F., 2012. On the role and interrelationship of spatial, social and cognitive proximity: personal knowledge relationships of R&D workers in the Cambridge information technology cluster. *Regional Stud.* 46 (9), 1169–1182. <https://doi.org/10.1080/00343404.2011.569539>.
- Jennings, J., Lee, J., Matsumoto, D.A., 2017. The Effect of Industry Co-Location on Analysts' Information Acquisition Costs. *Account. Rev.* 92 (6), 103–127. <https://doi.org/10.2308/accr-51727>.
- Jones, A., 2020. The nexus of professional service practices in Chinese financial centres. *Regional Stud.* 54 (2), 173–186. <https://doi.org/10.1080/00343404.2018.1483075>.
- Karadas, S., Papakroni, J., 2019. Local predictive ability of analyst recommendations. *Rev. Financ. Econom.* 37, 351–371. <https://doi.org/10.1002/rfe.1055>.
- Kross, W.J., Suk, I., 2012. Does Regulation FD work? Evidence from analysts' reliance on public disclosures. *J. Account. Econom.* 53 (1–2), 225–248. <https://doi.org/10.1016/j.jacceco.2011.11.004>.
- Lai, K.P.Y., 2006. 'Imagineering' Asian emerging markets: financial knowledge networks in the fund management industry. *Geoforum* 37 (4), 627–642. <https://doi.org/10.1016/j.geoforum.2005.12.003>.
- Lai, K.P.Y., 2012. Differentiated markets: Shanghai, Beijing and Hong Kong in China's financial centre network. *Urban Stud.* 49 (6), 1275–1296. <https://doi.org/10.1177/0042098011408143>.
- Lai, K.P.Y., Pan, F., Sokol, M., Wójcik, D., 2020. New financial geographies of Asia. *Regional Stud.* 54 (2), 143–148. <https://doi.org/10.1080/00343404.2019.1689549>.
- Loughran, T., 2008. The impact of firm location on equity issuance. *Financ. Manage.* 37 (1), 1–21. <https://doi.org/10.1111/j.1755-053X.2008.00004.x>.
- Malloy, C.J., 2005. The geography of equity analysis. *J. Finance* 60, 719–755. <https://doi.org/10.1111/j.1540-6261.2005.00744.x>.
- Malmberg, A., Maskell, P., 2002. The elusive concept of localization economies: towards a knowledge-based theory of spatial clustering. *Environ. Plann. A: Econ. Space* 34 (3), 429–449. <https://doi.org/10.1068/a3457>.
- Martin, R.L., 1994. Stateless monies, global financial integration and national economic autonomy: the end of geography? In: Corbridge, S., Martin, R.L., Thrift, N. (Eds.), *Money, Power and Space*. Blackwell, Oxford, pp. 253–328.
- Morgan, K., 2004. The exaggerated death of geography: learning, proximity and territorial innovation systems. *Journal of Economic Geography* 4 (1), 3–21. <https://doi.org/10.1093/jeg/4.1.3>. In press.
- Nonaka, I., 2007. The knowledge-creating company. *Harvard Busin. Rev.* 85 (7/8), 162–171.
- Nonaka, I., Takeuchi, 1995. *Theory of Organisational Knowledge Creation*. Oxford University Press, Oxford.
- O'Brien, R., 1992. *Global Financial Integration: The End of Geography*. Pinter / The Royal Institute of International Affairs, London.
- O'Brien, R., Keith, A., 2009. The geography of finance: after the storm. *Cambridge J. Regions, Econ. Soc.* 2, 245–265. <https://doi.org/10.1093/cjres/rsp015>.
- Peck, J., 2005. Economic sociologies in space. *Econom. Geogr.* 81 (2), 129–175. <https://doi.org/10.1111/j.1944-8287.2005.tb00263.x>.
- Robinson, G., 2021. Capturing a moving target: interviewing fintech experts via LinkedIn. *Area* 53 (4), 671–678. <https://doi.org/10.1111/area.12726>.
- Sassen, S., 2001. *The Global City: New York*. Princeton University Press, London, Tokyo, Princeton, NJ.
- Short, J.R., Kim, Y., Kuus, M., Wells, H., 1996. The dirty little secret of world cities research: data problems in comparative analysis. *Int. J. Urban Reg. Res.* 20 (4), 697–717. <https://doi.org/10.1111/j.1468-2427.1996.tb00343.x>.
- Smedlund, A., 2008. The knowledge system of a firm: social capital for explicit, tacit and potential knowledge. *J. Knowl. Manage.* 12 (1), 63–77. <https://doi.org/10.1108/13673270810852395>.
- Soltes, E., 2014. Private interactions between firm management and sell-side analysts. *J. Account. Res.* 52, 245–272. <https://doi.org/10.1111/1475-679X.12037>.
- Storper, M., 1997. *The Regional World*. The Guildford Press, New York.
- Storper, M., Venables, A.J., 2004. Buzz: face-to-face contact and the urban economy. *J. Econom. Geogr.* 4 (4), 351–370. <https://doi.org/10.1093/jnecg/lbh027>.
- Tether, B.S., Li, Q.C., Mina, A., 2012. Knowledge-bases, places, spatial configurations and the performance of knowledge-intensive professional service firms. *J. Econom. Geogr.* 12 (5), 969–1001. <https://doi.org/10.1093/jeg/lbs015>.
- Thrift, N., 1994. On the social and cultural determinants of international financial centres: the case of the city of London. In: Corbridge, S., Martin, R., Thrift, N. (Eds.), *Money, Power and Space*. Blackwell, Oxford, pp. 327–354.
- Thrift, N., Leyshon, A., 1994. A phantom state? The de-traditionalisation of money, the international financial system and international financial centres. *Polit. Geogr.* 13 (4), 299–327. [https://doi.org/10.1016/0962-6298\(94\)90001-9](https://doi.org/10.1016/0962-6298(94)90001-9).
- Vallance, P., 2007. Rethinking economic geographies of knowledge. *Geography Compass* 1, 797–813. <https://doi.org/10.1111/j.1749-8198.2007.00046.x>.
- van Meeteren, M., Neal, Z., Derudder, B., 2016. Disentangling agglomeration and network economies: a conceptual typology. *Papers Regional Sci.* 95 (1), 61–80. <https://doi.org/10.1111/pirs.12214>.
- Wainwright, T., 2015. Circulating financial innovation: new knowledge and securitisation in Europe. *Environ. Plann. A: Econ. Space* 47 (8), 1643–1660. <https://doi.org/10.1177/0308518X15605402>.
- Warf, B., 2011. Excavating the prehistory of time-space compression. *Geogr. Rev.* 101 (3), 435–446. <https://doi.org/10.1111/j.1931-0846.2011.00106.x>.
- Wójcik, D., 2009. Financial centre bias in primary equity markets. *Cambridge J. Regions, Economy Soc.* 2 (2), 193–209. <https://doi.org/10.1093/cjres/rsp008>.
- Wójcik, D., 2022. Financial geography III: research strategies, designs, methods and data. *Prog. Hum. Geogr.* 46 (1), 245–254. <https://doi.org/10.1177/03091325211043208>.
- Wójcik, D., Ioannou, S., 2020. COVID-19 and finance: market developments so far and potential impacts on the financial sector and centres. *Tijdschrift voor Economische en Sociale Geografie* 111 (3), 387–400. <https://doi.org/10.1111/tesg.12434>.
- Wójcik, D., MacDonald-Korth, D., Zhao, S.Z., 2017. The political-economic geography of foreign exchange trading. *J. Econom. Geogr.* 17 (2), 267–286. <https://doi.org/10.1093/jeg/lbw014>.
- Wójcik, D., Keenan, L., Pažitka, V., Urban, M., Wu, W., 2022. The changing landscape of international financial centres in the twenty-first century: cross-border mergers and acquisitions in the global financial network. *Econom. Geogr.* 98 (2), 97–118. <https://doi.org/10.1080/00130095.2021.2010535>.
- Wrigley, N., Currah, A., Wood, S., 2003. Investment bank analysts and knowledge in economic geography. *Environ. Plann. A: Econ. Space* 35 (3), 381–387. <https://doi.org/10.1068/a3638>.