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**Competition in Telecommunications and Internet
Services:
Problems with Asymmetric Regulations**

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**Competition in Telecommunications and Internet
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Summary: With the digital convergence of internet services markets and telecommunications markets, the issue of a common, consistent regulation has become more important. While Google or Facebook can exploit knowledge about the content of “data mails” or SMS, data protection rules for telecommunication operators are different – they cannot use info about “structural content” and are thus unable to generate high revenues from advertising that is based on knowledge about structural content. Internet service providers thus can cross-subsidize digital communication services and thereby gain market shares - based on cross-subsidization - in traditional telecommunication markets. Thus there is a fundamental inconsistency of regulations for internet service providers and telecommunication operators which should be remedied by new global rules for the emerging global communications market. The EU and the US, as well as other countries, plus the ITU should launch a joint initiative in order to create a global level playing field.

Zusammenfassung: Mit der digitalen Konvergenz der Internet-Service-Märkte und der Telekommunikationsmärkte, ist das Thema „gemeinsame, konsequente Regulation“ wichtiger geworden. Während Google oder Facebook Erkenntnisse über den Inhalt von „Daten-E-mails“ oder SMS nutzen, sind die Datenschutzbestimmungen für Telekommunikationsunternehmen anders. Sie können keine Informationen über „strukturellen Inhalt“ nutzen und folglich keine hohe Einnahmen durch Werbung generieren, das auf Wissen über strukturellen Inhalt beruht. Folglich können Internet-Diensteanbieter digitale Kommunikationsdienste quersubventionieren und damit Marktanteile – auf der Grundlage der Quersubventionierung – in traditionellen telekommunikationsmärkten gewinnen. Daher gibt es einen grundlegenden Widerspruch der Regulierungen für Internet-Diensteanbieter und Telekommunikationsunternehmen, welche durch neue globale Regeln für den aufstrebenden globalen Kommunikationsmarkt behoben werden sollten. Die EU und die USA, sowie andere Länder, und die Internationale Fernmeldeunion (ITU) sollten eine gemeinsame Initiative auf den Weg bringen, um global gleiche internationale Wettbewerbsbedingungen zu schaffen.

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Competition in Telecommunications and Internet Services: Problems with Asymmetric Regulation

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1. Introduction

Regulations of telecommunications have been applied in the EU, the US and many other countries where fixed-line telecommunication markets have been opened. In the US, the FCC has implemented the rules for telecommunications while the internet markets were largely non-regulated. In the EU, the European Commission has implemented, since the liberalization of fixed line telecommunications in 1998, a framework regulation which is the basis for national regulatory approaches in the EU member countries. Mobile telecommunications have remained rather weakly regulated in both the US and the EU – in the latter the European Commission has started roaming regulation in 2007; the internet has remained rather unregulated in both the US and Europe, although the increasing use of smart phones allowing mobile internet access raises the question whether non-discriminatory regulation would not require a joint regulation of all digital communication services; with global internet markets this would pose enormous challenges. Dominant digital firms in certain internet services – e.g. Google and Facebook – could represent very significant market power in many OECD countries and there is some risk of monopolization in the respective digital markets (HAUCAP/HEIMESHOF, 2014).

The key problem is caused by the increasing role of triple play which means that users have a preference for combined services: fixed-line/mobile communications plus internet services – the latter are increasingly used as mobile smart phones' prices are falling; key services on the internet refer to social media networks and the popular search engines – with Google leading in the western markets and some other dominant service providers in China and Russia, respectively. Internet markets increasingly affect global communication patterns (OECD, 2012). Similar to telecommunication markets there are economies of scale in the provision of services and there are network effects which imply particular advantages for those with a large customer basis. Triple play is a typical trait of modern communication markets as most customers enjoy to have a one-stop-shopping option: Mobile services, basic internet services, including search engine services, and media services are obtained as a bundled product from one company. From a theoretical perspective this could create problems with market power since a company X that is active in one of the three fields with big success – such that it enjoys market power in a particular market – could try to transfer market power from that market into the other markets.

As regards social media, Facebook is a very influential company, not least since it has acquired WhatsApp in early 2014, a powerful social network operator whose services allow to send messages, photos and movies around the world for a very small nominal fee or even at zero marginal costs; in the future WhatsApp could also offer telecommunications services. The biggest digital service provider is the company Google which offers many services for free while it is generating revenue from digital advertising which is partly based on algorithms related to communications via Google that allow Google to extract specific user preferences: This in turn allows Google to offer customer-tailored advertising campaigns that can fetch rather high prices in the market – and in the future Google might enter the digital communications markets. While Google can exploit info on the use of search engines and the contents which the users are creating in the

internet, the telecommunications companies are not allowed to exploit the digital contents that are in principle available in digital communications via telecommunications networks.

While general competition laws are relevant for standard markets, the telecommunications markets in the US and the EU have been regulated. Avoiding and dealing with significant market power has been a particular challenge in fixed-line telecommunications markets. The view of the 1990s that mobile telecommunications and fixed line telecommunications are complementary is no longer relevant in the second decade of the 21st century in OECD countries. Rather mobile telecommunications have increasingly become a substitute for fixed line telecommunications during the first decade of the 21st century. The peaks in fixed line telephony density are over while mobile telecommunication density is increasing in all OECD countries. As broadband can increasingly be used in mobile telecommunications, and since smartphones allow internet services to be used everywhere at rather low costs, there is a new tendency for mobile markets to dominate fixed-line communication markets (perhaps with the exception of the Netherlands where cable TV coverage is potentially above 90% and thus creates a very competitive fixed-line market with low prices and many innovative services). The analysis which develops a new approach to asymmetric digital competition is organized as follows: In section 2 we take a brief look at key elements of digital communication markets, including descriptive statistics on telecommunications and the use of the internet. Section 3 puts the focus on theoretical aspects of asymmetric competition in digital communication markets and explains why the internet service providers enjoy a specific – potentially unfair – advantage as data protection for internet service providers is weaker than for telecommunication operators; such a non-level playing field implies that market capitalization of internet service providers typically will be higher than that of telecommunication operators so that mergers & acquisitions can be expected to mainly start in the internet services market – internet service providers are rather likely to take-over traditional telecommunications companies. To the extent that such developments are only rooted in asymmetric regulation M&As will not systematically contribute to efficiency gains. Section 4 draws some policy conclusions.

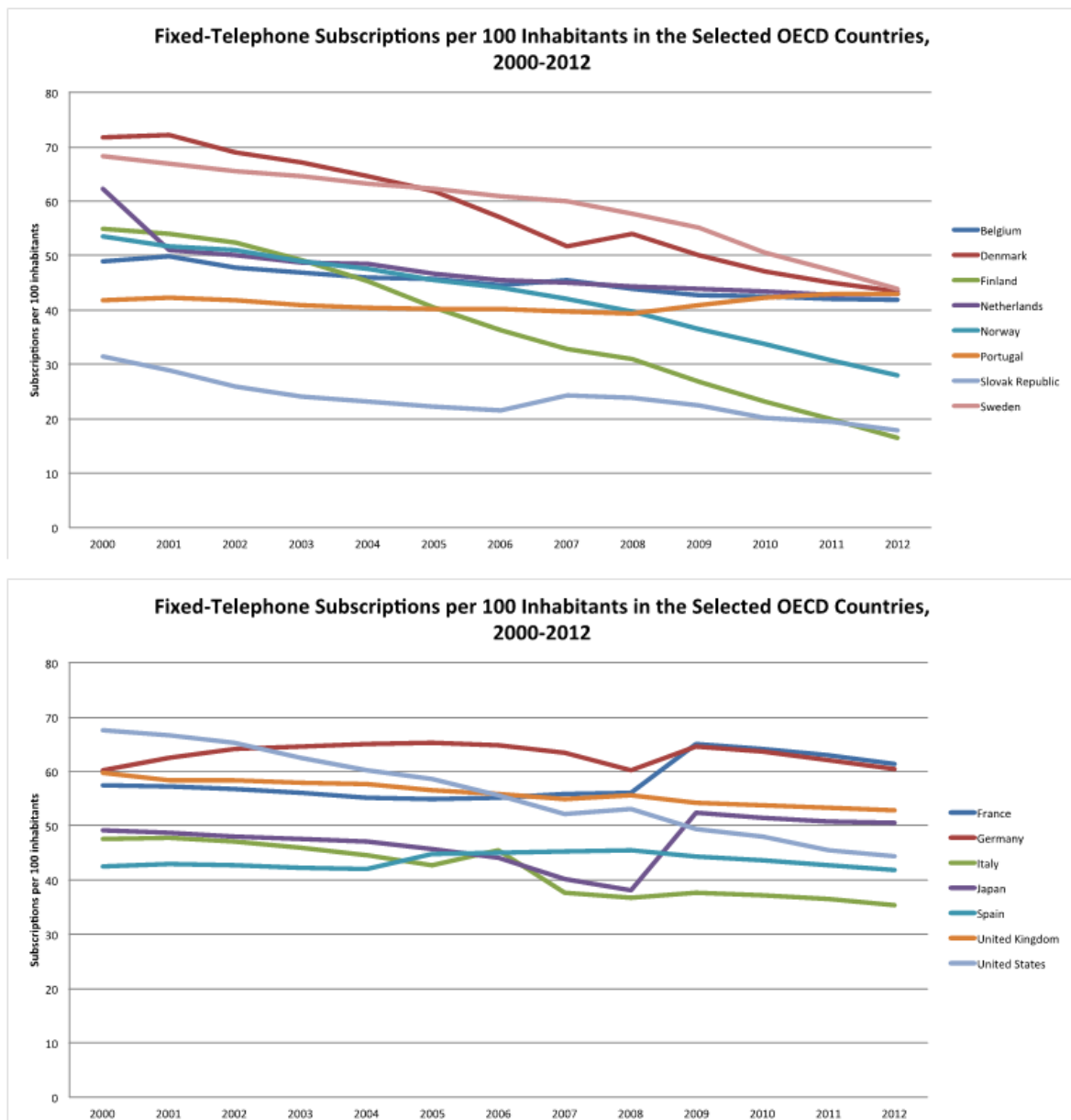
2. Digital Global Markets

With digital communications increasingly based on IP-technology, distance in telecommunications will become less and less relevant over time and global digital markets will be created. These markets could be shaped by traditional telecommunications markets or by social network firms/internet service providers. If there were a global level playing field economic policy makers would not have to raise the issue of adequate global rule-setting, however, there is no level playing field. The following analysis gives information on some key digital indicators.

Fixed-line telephone density has declined in many OECD countries in the first decade of the 21st century and this indicates that mobile phone services are increasingly considered to be a substitute for fixed-line telephony. The implication for competition policy is that the

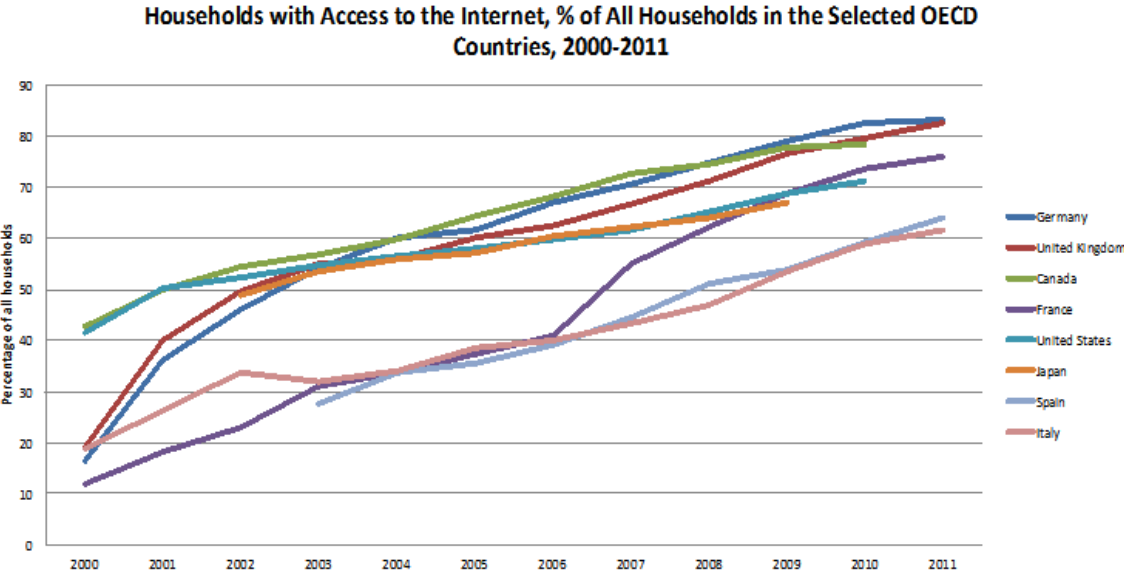
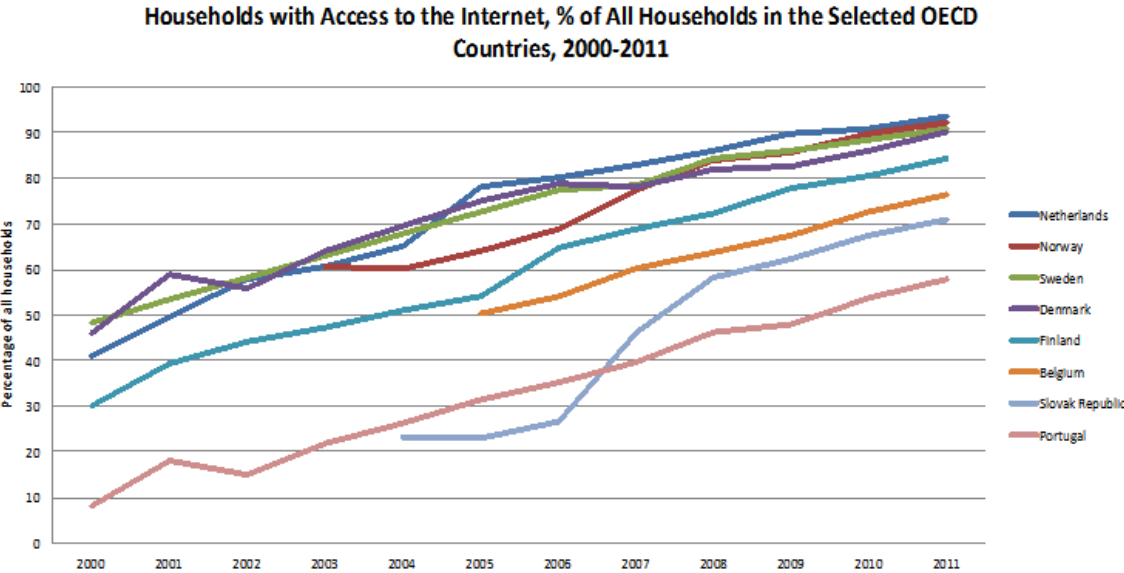
relevant markets are not two distinct markets, namely fixed-line telecommunications and mobile telecommunications; rather there is a single relevant digital communications market – in this context a broader perspective could even suggest that the internet services also is included. With Facebook buying WhatsApp, this new question must be raised.

Figure 1: Fixed-Telephone Subscriptions per 100 Inhabitants in Selected OECD Countries, 2000-2012 (Fixed-line Density in Selected OECD Countries)



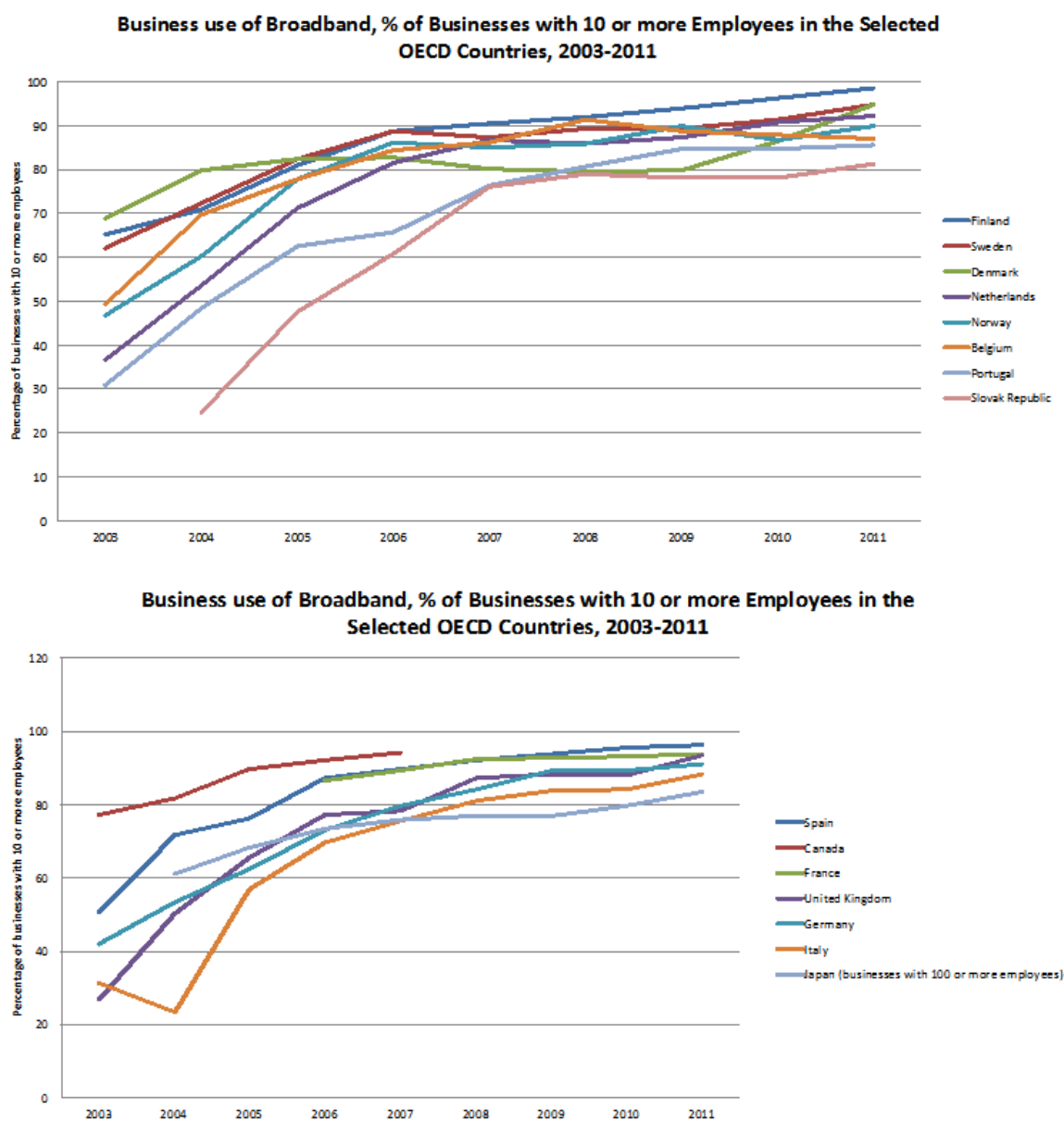
Source: ITU Statistics, <http://www.itu.int>

Figure 2: Households with Access to the Internet in the Selected OECD Countries, Percentage of All Households, 2000-2011 (Internet-Density of Households in Selected OECD Countries)



Source: OECD, ICT database and Eurostat, Community Survey on ICT usage in households and by individuals, June 2012

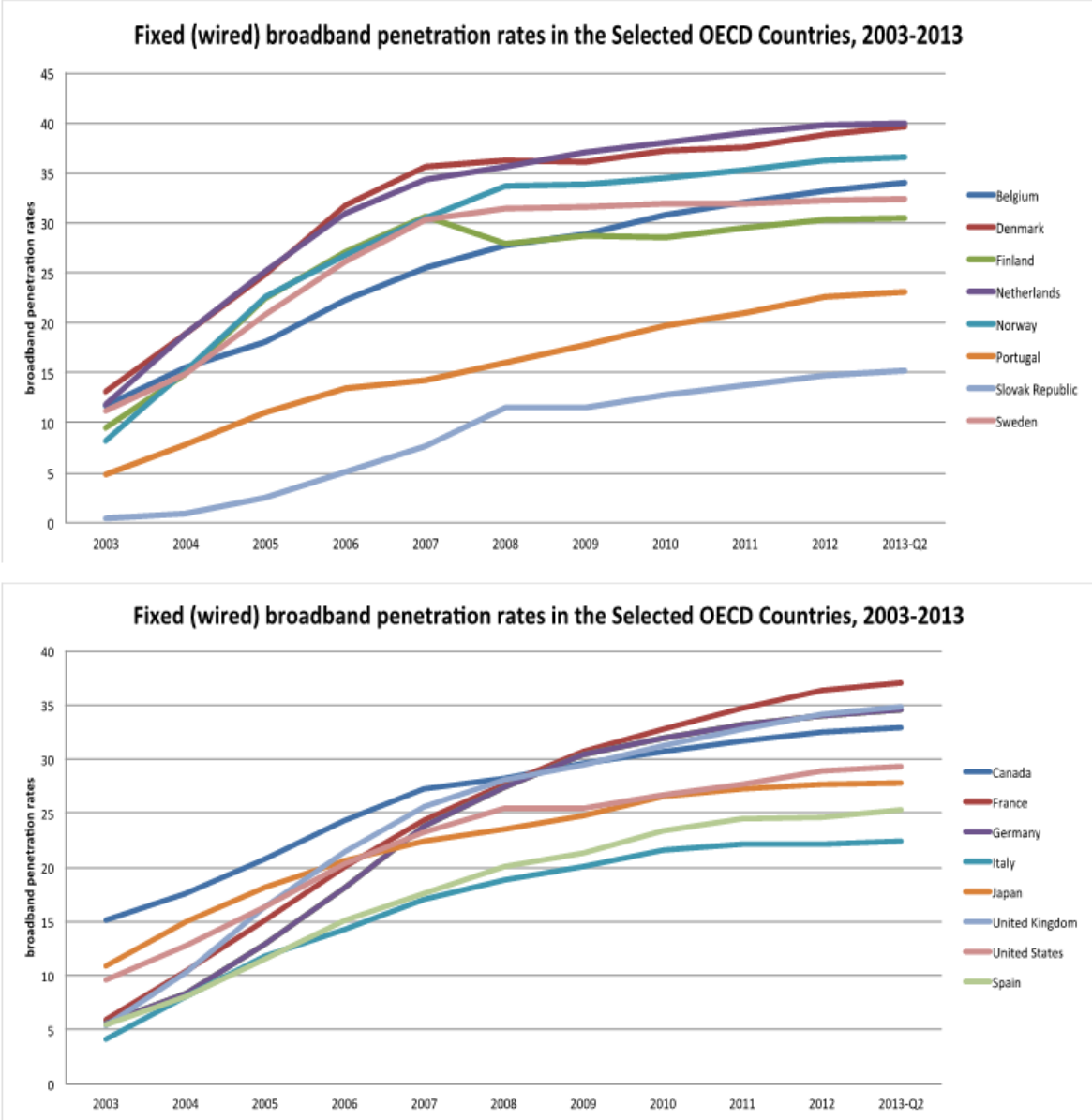
Figure 3: Business Use of Broadband, % of Businesses with 10 or More Employees in Selected OECD Countries, 2003-2011 (Internet Density: Corporate Sector)

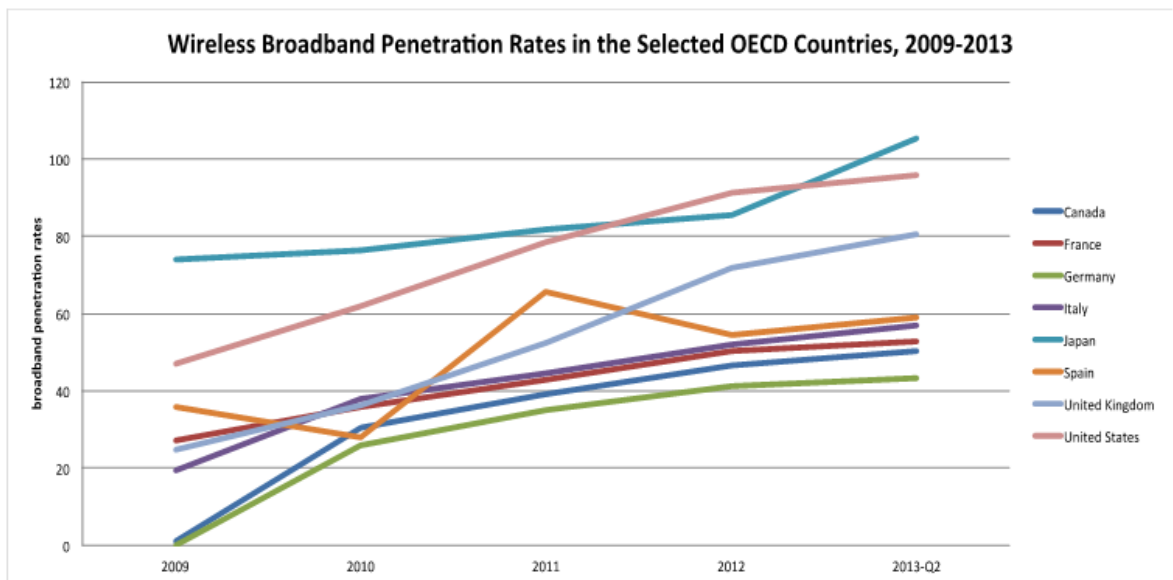
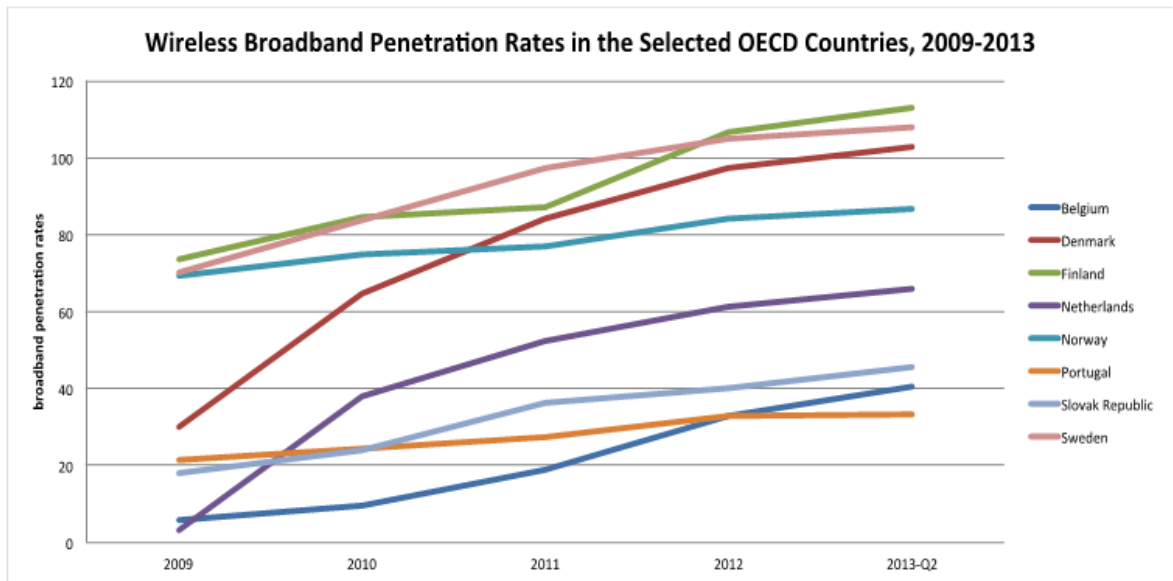


Source: OECD, ICT database and Eurostat, Community Survey on ICT usage in enterprises, June 2012

The graphs show that internet density has strongly increased in the decade after 2001 in selected OECD countries. This holds particularly for the corporate sector.

Figure 4: Broadband Penetration Rates (Fixed and Wireless) in the Selected OECD Countries, 2003-2013 (Broadband Density in Selected OECD Countries)

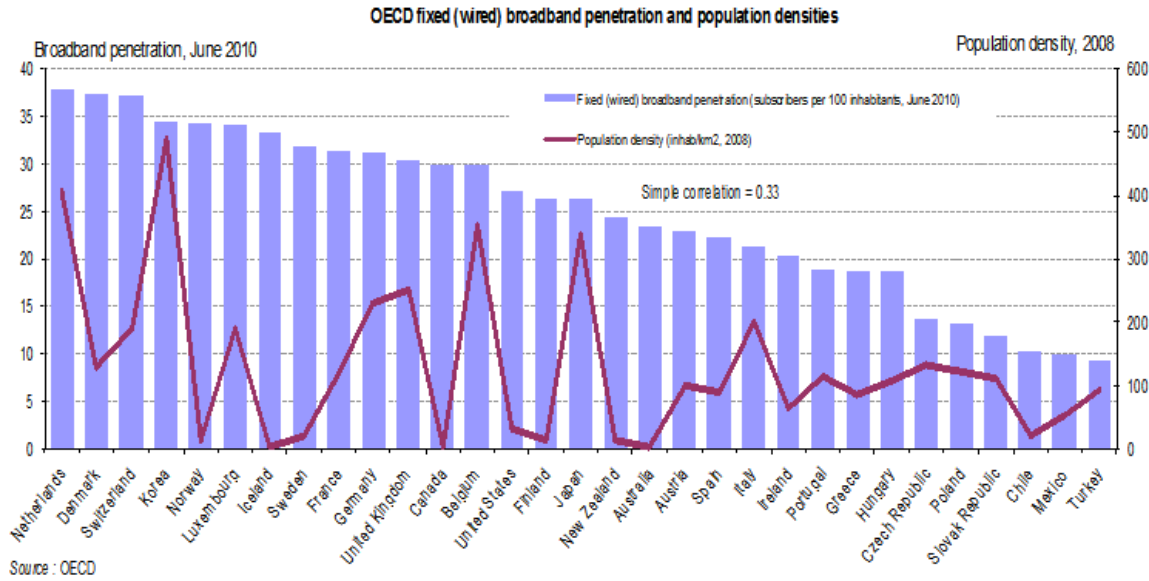




Note: Before June 2009, fixed wireless and satellite subscriptions were included in the fixed broadband data. From Dec. 2009 they are excluded.

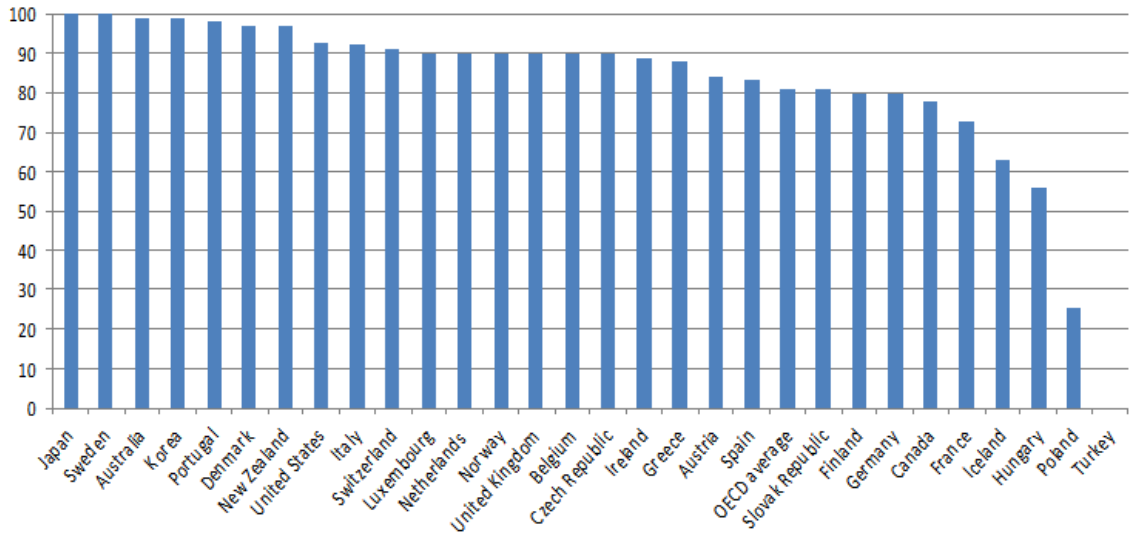
Source: OECD Broadband statistics, oecd.org/sti/ict/broadband

Figure 5: OECD fixed (wired) broadband penetration, 2010 and population densities, 2008



Source: OECD Broadband statistics, oecd.org/sti/ict/broadband

Figure 6: Smart Phone Density in Selected OECD Countries: 3G population coverage (%), latest available year up to 2009



Note: Coverage data are measured using different indicators and have different reference dates and thus may not be fully comparable. Further details on the indicators used may be found in the report DSTI/ICCP/CISP(2009)3/FINAL, 'Indicators of broadband coverage'.

Source: OECD (2010), Indicators of broadband coverage, OECD, Paris, www.oecd.org/sti/telecom

As regards communications markets these are part and parcel of the ICT sector whose economic significance has been growing over more than two decade. Looking at nominal shares of ICT expenditures relative to nominal GDP suggests that Germany, the US etc.

have already experienced a peak of the ICT investment dynamics. This, however, is not the case and becomes clear once that the focus is on real ICT investment figures (using a deflator for the ICT sector) relative to real gross domestic product (WELFENS/PERRET, 2014). As digital networks are expanding in both industry and in the private household sector the potential role of social networks as well as the role of internet search engines is increasing over time. It also is noteworthy that internet densities increasingly have an impact on international trade in groups of various technology intensity (YUSHKOVA, 2014). JUNGMITTAG/WELFENS (2006); JUNGMITTAG/WELFENS (2009) have shown empirical evidence that the international telecommunications volume has a positive impact on trade volume. The markets for telecommunications and the internet increasingly are converging, mainly for technological reasons – as all modern telecommunication networks are based on the internet protocol. The leaders of the internet world could become the new giants in the future joint digital markets, however, there could be a bias in competition that is to the disadvantage of telecommunications operators so that not necessarily the most efficient companies will dominate these joint digital markets.

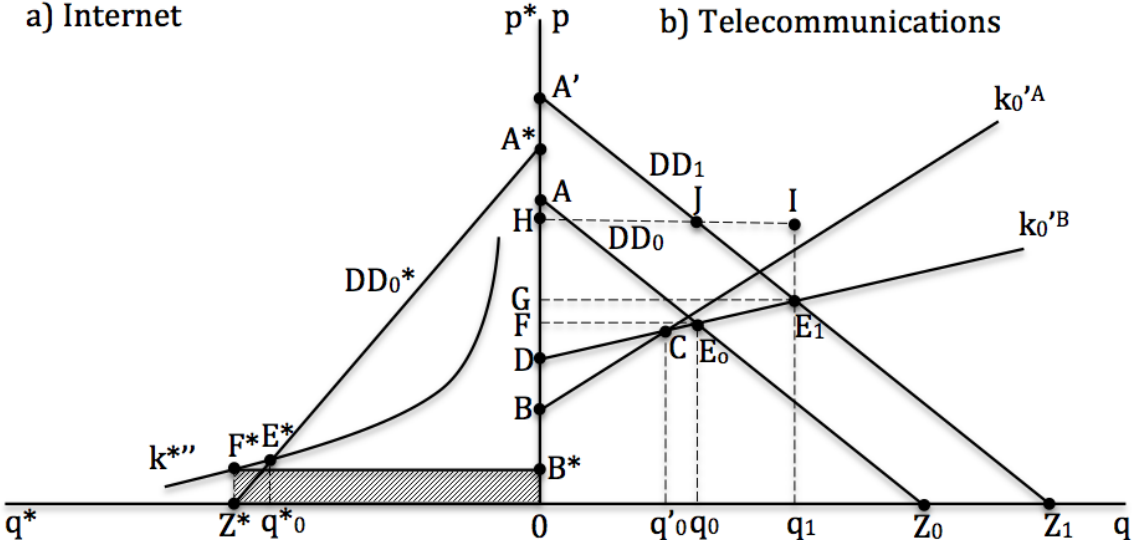
While Facebook or Google can exploit knowledge about the content of “data mails” and internet search activities, data protection rules for telecommunication operators are different – they cannot use info about “structural content” and thus are unable to generate high revenues from advertising that is based on knowledge about structural content. Internet service providers thus can cross-subsidize digital communication services and thereby gain market shares - based on cross-subsidization - in traditional telecommunication markets. Thus there is a fundamental inconsistency of regulations for internet service providers and telecommunication operators which should be remedied by new global rules for the emerging global communications market. The following analysis develops a theoretical framework for understanding the key problems of asymmetric competition.

3. Theoretical Analysis of Asymmetric Digital Competition

The asymmetric competition in internet services and telecommunications is a key challenge for regulators worldwide. The following graph is a simplified analysis of the key problems. In the left-hand graph (a) the internet services markets are shown and falling average costs k^* – and falling marginal costs (not shown in the graph) – are relevant here. For the sake of simplicity in exposition it is assumed that the telecommunications market is characterized by rising marginal costs k^B where the telecommunications operator has marginal costs k^A ; the internet service provider could provide telecommunications services at marginal costs k^B . For the internet service provider it makes sense to offer services at a price of zero (p^*) in the internet market in order to generate a larger customer base, whose structural info exploitation allows to create additional demand through targeted advertisement. This advertisement will shift the demand curve in a) into the new position DD_1 from which the internet service provider will benefit. The initial market volume of firm A in the telecommunications market is q'_0 , while the internet service

provider has a market share of q_0 ; after the rightward shift to the DD_1 the market volume of company B is q_1 . If combining info from the internet services market (the preferences of clients) and digital services product differentiation to create perfect price discrimination in the telecommunication services market the average price in the telecommunications market will be equal to the distance OH (GH is $\frac{1}{2}$ of the distance GA') and profits are given by GE_1IH from which the internet service provider will obtain a certain fraction (say 20%); the principle of broad price discrimination in internet-related markets has been emphasized in the literature (WELFENS, 2002). The internet services firms, particularly powerful internet search platforms, are privileged to the extent that their comprehensive data mining will facilitate to generate market power in the digital communications markets whose profits in turn partially will accrue to the internet service providers.

Figure 7: Asymmetric Competition Between Telecommunications Companies and Internet Service Providers

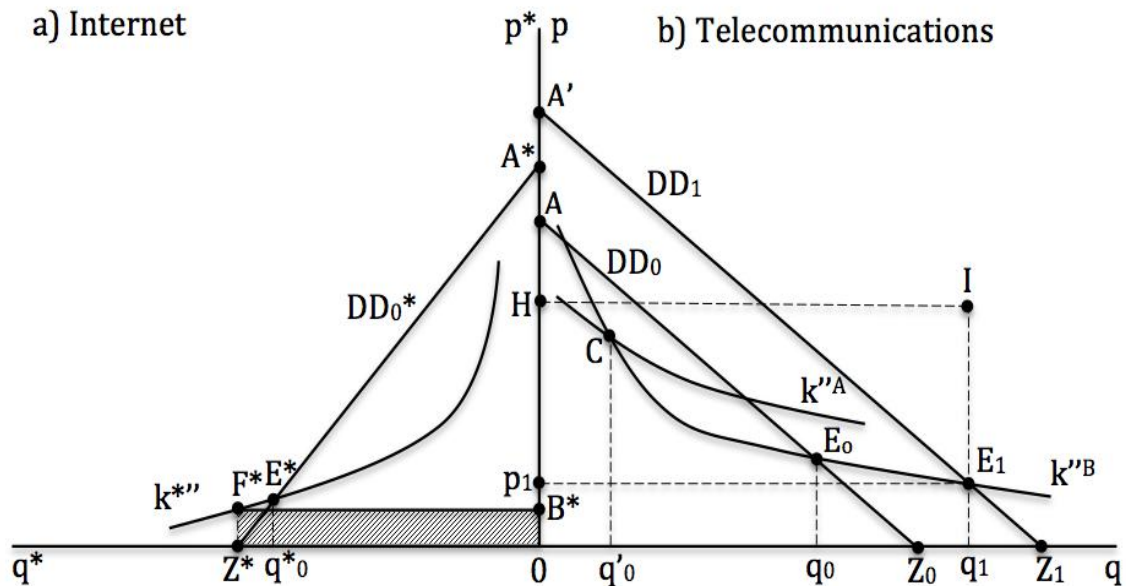


There are similar insights if one assumes that the digital communication markets are characterized by economies of scale (and network effects), at least if one assumes that the internet service providers face higher average cost k'' and marginal cost for small volumes in the digital communication markets, but have a relatively strong fall of average costs – compared to the traditional telecommunications operator(s). Again it has been indicated how strong profits in the telecommunications sector will increase (HIE_1P_1) if due to targeted internet advertising the demand for telecommunications services is raised (DD_1) and perfect price discrimination imposed in the telecommunication services market.

Network effects imply that there is an endogenous medium term rightward shift of the demand curve once the market equilibrium volume is increasing in the short term: So if both average costs curves would shift downward this would automatically generate a rightward shift of the demand curve (or alternatively the demand curve would become steeper due to network effects). Again, internet service providers that are able to extract information about internet/telecommunications clients' preferences in a specific way can have a distinct impact in the digital communications markets: firms with significant market

power in the internet services markets – these are largely unregulated – can transfer market power into the telecommunications markets, at least into certain niche markets.

Figure 8: Asymmetric Competition Between Telecommunications Companies and Internet Service Providers: Falling Average and Marginal Cost in the Telecommunications Sector



This is a non-trivial challenge for traditional telecommunication operators and one should raise the question why governments in most OECD countries consider strict regulation of the incumbent operator in telecommunications as a natural state of economic policy while the internet activities of very big firms – with significant market power in the internet market (e.g. Google in many OECD countries) – are not regulated on the one hand and telecommunication activities of internet service providers on the other hand also are not regulated.

4. Policy conclusions

The EU and the US, as well as other countries, plus the ITU should launch a joint initiative in order to create a global level playing field. The more internet service providers compete in the same market as traditional telecommunications operators, the less economic policymakers should ignore the potential transfer of market power from the internet market into digital communications markets. Indeed, given the international rise of smart phone densities there is an increasing convergence of all digital markets: Telecommunications plus internet plus TV will constitute a single market in the medium term in most OECD markets since households prefer triple play products over distinct services for the three services fields. Google, for example, has market share in the internet search engine market of close to, or above, 70% in many OECD markets and similarly Facebook has a very high market share in many countries in social networks. As Facebook is entering the digital

message market in the digital world economy, it is high time for competition authorities to consider the problem of the transfer of digital market power.

As there is no global digital competition watchdog, one will have to rely on broad cooperation between the US FCC, the European Commission and the relevant EU institution, BEREC (the framework institution responsible for telecommunications regulation), and Japan's competition policy authority. In the EU, the European Commission should reconsider regulatory policy in the field of telecommunications and indeed encourage market consolidation in the EU; the number of telecommunications operators in the EU is much higher than in the US and there are no convincing reasons why market consolidation in Europe should be made so difficult in the age of internet telephony and internet-based digital messaging. Market consolidation should be facilitated both in fixed-line telecommunications and in mobile telecommunications as these two markets are merging over time. At the same time policymakers should start discussions about a common minimum universal digital service – this could be financed from an international, or global, universal service fund; one should, for example, consider defining global internet services within a certain data limit as a global universal service. As regards the negotiations on a transatlantic free trade area – the negotiations on a Transatlantic Trade and Investment Partnership (TTIP is the US acronym) – one should indeed consider the new challenge of joint digital competition policy: A transatlantic framework could be established that indeed helps to establish a level playing field for all companies in the digital transatlantic market and the global digital markets, respectively.

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