

Forging Glocal Governance? Urban Infrastructures as Networked Financial Products

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Abstract

Urban infrastructure provisions are increasingly shifting from public good to private property, with cities and regions valued merely on a quarter-to-quarter basis. The argument in this article is threefold. The urban infrastructure landscape is undergoing financialization. Additionally, building on Graham and Marvin who describe how infrastructure networks are being unbundled locally, these infrastructures are simultaneously being interlinked internationally via specialist global infrastructure funds. Third, non-local owners, by abiding by contractual obligations, play an increasing role in the governance of infrastructure projects at the urban scale, and a 'glocal' form of governance is developing. These arguments are illustrated by an investigation of the privatized toll road 407 in the Greater Toronto Area, where the leading investment bank in 'infrastructure' is one of the global owners. With increased use of the international norms of commercial law and the fluctuating cycle of local, national and supranational politics, a toll-pricing controversy occurred wherein provincial politics challenged a 'self-regulating' contract encouraging the private owners to increase the toll charges when both the traffic and toll thresholds were met, so as to create congestion relief on this particular road. Road users, provincial and federal Canadian governments, and even the European Union were involved.

Introduction

Private financing of infrastructure is re-emerging in the developed world after four decades of mainly collective public sector financing, construction and maintenance (Graham and Marvin, 2001). This process has recently both accelerated and spread to urban landscapes across the globe. Infrastructure provisions are increasingly becoming financial products, with cities and regions valued merely on a quarter-to-quarter basis (Babcock-Lumish and Clark, 2005). Toll roads in Australia, Chile, South Africa and Spain, railroad tracks in the UK and Sweden, electricity grids in countries including the Netherlands, airports in Australia, Belgium and Malta, water networks globally and even British schools and hospitals are now incorporated into investment portfolios and in

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some cases traded on stock exchanges. In spite of the state having the social and political accountability for the urban landscape, so it can secure equal access, and despite the standard belief that due to the fixity of and the often large-scale lumpiness of roads or water networks it is more efficient to delegate the responsibility to the state, the ownership of and responsibility for infrastructure is changing (Clark, 2005). Governments are decreasing their financial backing of infrastructure works, motivated by political thinking on 'value for money' and risk transfers away from the public sector, budget constraints, and needs for capital improvements.

With infrastructures shifting from public good to private property, the urban infrastructure landscape is undergoing financialization.¹ This is resulting in the 'splintering' of integrated urban networks (Graham and Marvin, 2001). With the decisions by governments, both local and national, to open up their various infrastructures to private owners through concessions and outright sales, infrastructure is slowly being taken out of the local, regional and national day-to-day political and public policy spheres and increasingly owned by international private parties. In this article I build on Graham and Marvin (2001) who have described how various infrastructure networks are being unbundled locally. This remaking of space into locally unbundled private properties at the urban scale as a response to crisis tendencies such as budget constraints has, however, simultaneously seen the rise of infrastructure interlinked internationally, with such unbundled infrastructures placed in global infrastructure funds that are managed by specialized financial institutions. The expanding global infrastructure market operates in and through this remaking of space, with the urban landscape in certain countries and localities becoming the property of specialized financial institutions, capturing the value of a place while distributing the risk of being invested in it, as various global infrastructure portfolios are being built within which risks are hedged (Clark, 2005). This argument is supported through an investigation of the leading investment bank in the field, Macquarie Bank, which has various unlisted and listed infrastructure funds on the Sydney, New York, Singapore, Toronto and Seoul stock exchanges.

This local unbundling and global interlinking is changing the governing structures of infrastructures, as arm's length regulators are created and the relationships between governments, investors, operators and contractors are defined by contractual mechanisms (Babcock-Lumish and Clark, 2005). While giving an overview of various infrastructure categories, the case study in this article focuses on urban toll roads. Non-local owners, through abiding by contractual obligations, play an increasing role in the governance of infrastructure projects at the urban scale. 'Glocal' products, owned by global owners and regulated by local actors are developing, forging new styles of 'glocal' governance. This governance is based on the rule of law, through which global players own and manage infrastructure assets in various countries in just one portfolio. One such change in the urban landscape occurred in Toronto, Ontario. In 1999, the publicly owned toll road, highway 407, was leased to a private consortium by the provincial Ontario government. It has since been owned and operated collaboratively by engineering companies, an institutional investor and a financial institution, most of whom desire long-term risk-adjusted rates of return that are sufficient to attract global investors who have opportunities to invest elsewhere. A toll-pricing controversy arose in 2004, however, implicating the global financial community, road users, the various governments and the European Commission — since one of the investment partners is Spanish. They were pitted against each other, each having a stake in the provision of urban transport despite their varied economic and political interests (Babcock-Lumish and Clark, 2005). At the source of the controversy was a 'self-regulating' contract based on the local infrastructure policy of the late 1990s.

1 According to Orléan (1999) financialization means the continuous assessment of (economic) activities by financial markets.

The broader arguments of this article are illustrated through the 407 case, which at the time was considered the largest privatization of a road worldwide and can be argued to be the precedent for an increased interest from private actors in infrastructure assets. Not only is the interlinking of this road with roads in Australia, the US and other continents in the Macquarie Infrastructure Group global portfolio of interest, the global–local dynamics brought about by the tension of non-localness through increased use of the international norms of commercial law on the one hand, and the fluctuating cycle of local, national and supranational politics prevailing on the other, exemplifies the use of the remaking of space by a government for a short-term benefit, while not fully comprehending or considering political economic conflicts that could occur in the long run. An unbundled but globally interlinked infrastructure provision continues to be influenced by local politics, as legal battles over property rights instigated by the province of Ontario are affecting the political and financial landscapes of, and relationships between, Canada and the EU. With doubts cast on the commitment of Canada to adhere to contractual obligations, and the possibility of a veto of a future international trade agreement by Spain lurking in the background, the Ontario government operated a fine balance between fulfilling their political promise and retaining investors' interest in Ontario infrastructure.

The case study draws upon a number of interviews with owners of the highway 407, investment bankers who were involved in the bidding process and deal making, civil servants with the Province of Ontario, representatives of the City of Toronto, and others who have studied the case.² The semi-structured interviews follow the 'close dialogue method' (Clark, 1998) in order to develop a deeper understanding of the case over time. This method is better suited for analysing changes in governance over time, particularly for unearthing the nature and characteristics of tensions and conflicts arising around socio-economic restructuring. The 'corporate interview' technique with the investment bankers and equity investors was also applied (McDowell, 1991; Schoenberger, 1991). This methodology attempts to work through how human activities give social structures their reality (Logan and Molotch, 1987). The interviews are also augmented by an extensive document review that provides factual information. This article contributes to understanding the interaction between financial actors and the urban landscape by means of an empirical analysis and furthers research into the governance implications of the private financing of infrastructure. It contributes to the fields of urban and economic geography by examining the embedding of finance in urban space.

This article is laid out in the following manner. In the next section an overview of theories around the changing political economies of urban infrastructure provisions is provided. After setting up the frame within which these developments are taking place, literature on 'glocal' governance is discussed. Macquarie bank, the owner of a large stake in the 407, is investigated in the fourth section and its business strategy is mirrored in the unbundling of local infrastructures. In light of the governance issues raised above, the fifth section contains a detailed analysis of the 407 case and demonstrates a tension between (non-local) law and (local) politics. The conclusion discusses the effects of such financializations of urban infrastructures and issues for future research.

Reconfiguring urban infrastructures

Private ownership of infrastructures is not a new phenomenon; before the second world war many infrastructures were financed and built by private parties (Graham and Marvin, 2001). The private financing of infrastructure is, moreover, a common phenomenon with financial institutions frequently buying either general bonds that cover most public infrastructure financing or revenue bonds issued to finance specific infrastructures

2 Politicians did not want to talk about the topic in the summer of 2005 due to the legal action.

(Hackworth, 2002; Slack, 2005). This article defines urban infrastructure as those essential services that an urban society cannot do without (OECD, 1991; 2004; 2006). The ownership of and responsibility for urban infrastructures is changing, with governments transferring ownership and responsibility through the sale of equity stakes to both engineering companies and, increasingly, financial institutions.³ The operation of infrastructure systems is — owing to ownership changes — being organized in new institutional and spatial contexts.

The financialization of urban infrastructures

The modern city ideal has been making place for locally unbundled networks with private parties interested in selective and profitable infrastructure projects (Christopherson, 1992; Clark, 2000). Graham and Marvin (2001) argue that this shift, combined with technological innovations, has contributed towards a ‘splintering urbanism’, a practice that is emerging in virtually all cities across the globe as localities are enrolled into internationalizing capitalist political economies. They display a range of theories that have been developed to make sense of the unbundling of urban infrastructures. These theories vary from focusing on technical explanations, to ones that theorize the effects on natural and social spaces. One of the most developed strands in geography is the theorization of the changing political economies of urban infrastructure. Through the spatial political economy approach it is argued that the production of infrastructure networks is rooted within the broader power relations of global capitalism (Harvey, 1985; 2003; Swyngedouw, 1992). A central argument revolves around the contradiction between the fixity of infrastructure networks in geographical space and the need for circulation of information, money and services. Capitalism’s inherent drive is to create a spaceless world that facilitates the mobility of capital, labour and information products, but the networks necessary for this mobility are rooted in produced space (Swyngedouw, 1992). There is a contradictory need for infrastructure networks to be fixed in space in order to make movement possible for the rest. At the same time, with capital’s ‘spatial fix’, ‘sunk’ capital is empowered to circulate into the built environment and is invited to develop customized infrastructures in specific spaces (Harvey, 1985; Graham, 1999). This lens offers a view of how the production and reconfiguration of urban infrastructure networks is intimately bound up with the production and reconfiguration of urban landscapes: the recently developed global infrastructure market would not have existed if the remaking of space through this unbundling and financialization had been absent. The rise of this market produces space, as it operates in and through the remaking of space, and this rise has ensuing spatial consequences. With this financialization, more parts of the urban landscape are assessed merely on financial criteria, with all the pressure and reconfiguration that this brings (Orléan, 1999; Theurillat *et al.*, 2006).

While urban political economists have worked on understanding the dynamics between finance and infrastructures over the last 20 years, the growing subfield of the geography of finance has dealt with various issues related to finance and cities. The emphasis has been on understanding the development and spatial concentration of financial centers (Leyshon, 1995; Porteous, 1999; Martin, 2000; Sassen, 2000), face-to-face interactions between professionals in cities (Sassen, 1991), rankings of global cities into alpha, beta and gamma status (Taylor, 1995; Beaverstock *et al.*, 2005) and understanding spatial and personal relationships on the trading floors (Grote *et al.*, 2002; Buena and Stark, 2003; Grabher and Powell, 2004). Despite an initial lack of research into finance and localities due to a focus on ‘productionism’ (Corbridge and Thrift, 1994; Tickell, 2000), some research has been undertaken into understanding the relationship

3 This reorganization of the state through shifting responsibilities for many inherited nation-state functions to market agents has been described as neoliberalization (see Peck and Tickell, 2002). This is, however, beyond the scope of this article.

between finance and the built environment through studies of urban real estate (Harvey, 1974; Pryke, 1991; 1994) and Graham and Marvin's 'splintering urbanism' thesis. Other studies have focused on the geography of UK private finance initiatives, the vehicle through which infrastructures are increasingly financialized in the UK (Musson, forthcoming). Clark (2005) has argued, however, that with the shifting responsibilities, a better understanding of financial institutions specializing in urban infrastructures is necessary.

Glocal governance

Contracts sit at the heart of the private financing of infrastructures and are used as the formal mechanism to allocate risk between investment partners, define time horizons, define the rewards and penalties of performance, and set partners' performance standards in relation to accepted benchmarks (Clark and Evans, 1998; Babcock-Lumish and Clark, 2005). They form the basis of the governing process and are spurring the use of unbundled infrastructures. One of geographers' main focuses of analysis has been the study of the intensification of capital's uneven geographical development. Recent state rescaling has intensified this process by supporting 'glocal' fixes of rail tracks, roads, satellite systems and utility networks (Brenner, 1998). This process has resulted in forceful global-local interactions and the establishment of glocal scales, which are geared toward powerful interests. 'Glocal' is used in different ways: some use it to describe infrastructural and technological changes to the landscape whereby local value users are connected with global circuits; glocal bypasses (Graham and Marvin, 2001). Others describe it as the space in which globalization and decentralization, or localization, meet (Swyngedouw, 1989). This article uses the term glocal to describe infrastructure assets that are owned by global equity parties, while being mainly locally controlled by public regulators. The glocal governance that follows from this global-local interaction to provide an infrastructure builds on the increased use of international norms of commercial law to govern an infrastructure project from afar: project assessment and management is increasingly ruled by law (Clark, 1999).

The embedding, constructing and operating of infrastructures requires complex regulatory interchange between markets and national and local states, progressively in conjunction with transnational bodies. While the unification of regulatory regimes is underway, the development of infrastructure is still closely connected to the state and the market (Graham and Marvin, 2001). Private market institutions are, however, increasingly involved in the setting of global standards, exercising their authority through global market forces (Hall and Biersteker, 2002). Private international regimes are emerging through the partnership of firms, business and industry associations and other corporate actors. In the 1990s many European and North American utilities expanded their radius of activities by mergers and takeovers, and have partially developed into global players. Now that institutional investors are taking over the distribution assets from utility companies, either directly or indirectly via infrastructure funds, there is an increased reliance on market mechanisms which enhance the authority of private institutions, actors and processes; growing delegation of regulatory authority to private business associations; and expanding opportunities for the emergence of private and self-regulatory regimes (Cutler, 2002). The new market authority has a deterritorializing tendency, whereby formal and informal institutions create governance rules for dealing with conflicts among participants on multiple levels in complex ways, involving interaction and cooperation with the state. This is resulting in both growing merchant autonomy over law creation and rising international commercial arbitration (Hall and Biersteker, 2002) and creates a highly privatized legal order that delocalizes and deterritorializes commercial transactions and law. In globalization debates many contend, however, that local configurations should be and are maintaining power over their landscapes (Cox, 1996; 1997; Swyngedouw, 1992, 1997; Weiss, 1998; Sassen, 2002). While deregulation brings forth new 'legalities', derived from Anglo-American

TRANSPORT				PUBLIC SERVICES		
Roads	Rail	Airports	Ports	Utilities	Telecoms	Social
Toll roads Tunnels Bridges	Track Stations Rolling Stock	Airports	Container and Passenger terminals	Transmission networks Distribution networks Water and sewerage networks District heating Contracted generation	Broadcast transmission Cable Networks Fixed line systems Switching stations	Health Education Other services

Figure 1 Infrastructure examples

commercial law and imposed on other states, states do remain involved in enforcing international commercial agreements, ‘serving to relocalize and reterritorialize the transactions at the point of dispute settlement’ (Hall and Biersteker, 2002: 31).

Urban places are, as Smith (2001) has described, becoming ‘translocalities’ with multifaceted and multiscaled links and connections elsewhere. The shift of responsibility for essential urban services into the hands of global financial institutions has created slices of infrastructure that are linked across continents. O’Brien’s (1992) hyperbolic statement that geographical location no longer matters in finance, and the need to base decisions on geography will certainly change and often diminish in some way, could in the future be argued to be apt, as regulatory regimes for infrastructures are, to some extent, harmonizing. Studies of urban (technical) networks thus must increasingly be related to studies of supranational infrastructure systems (Coutard, 1999).

Unbundling

The global finance markets are awash with capital. Not only is there an abundance of money, traditional equity allocations have been downsized due to the reminder that stock markets are turbulent and unpredictable that arrived at the end of the 1990s. Alternative investments are growing. As a result, international investors are looking for new financial products, increasingly owning more and more of the urban infrastructure landscape. Parallel to local unbundling is the growing phenomenon of the international interlinking of infrastructures through funds. This phenomenon has its own geography, with the most sophisticated players in the market concentrated in the financial centres of London, Sydney and Toronto.

Unbundling managed globally

The asset class ‘infrastructure’ is usually split into (1) transport infrastructure such as roads, rail tracks and airports with user fees; (2) regulated infrastructure such as water, electricity and gas distribution networks with a regulated service contract with availability fees; and (3) social infrastructure such as schools and hospitals, as can be seen in Figure 1.

Global equity players play an increasing role in the governance of infrastructure projects at the urban scale, governing their investments around the globe in line with their in-house financial models and adherence to contractual obligations set out by the local entity that is delegating its infrastructures. Not only are we seeing the connection of highly valued spaces and zones within cities through the creation of toll roads, such local spaces are becoming part of a system where infrastructure networks can be seen as a hub and spoke system, with global owners at the hub, connecting their spokes over various continents. Global players own and manage infrastructure assets in various countries

in one fund. No research has been undertaken into understanding how such internationalizing production forces interact with local traditions in forging different glocal styles of urban governance and physical, social and economic transformations of cities (Graham and Marvin, 2001). In the next section, by examining the unbundling of local urban infrastructure networks through the eyes of a large global equity player involved in owning supranational infrastructure systems, the globalization of the attendant financial instruments that have made glocal products possible is highlighted.

Interlinked infrastructure funds

Various investment banks could be the focus for research into infrastructure investing, as 'infrastructure' as an asset class is picking up pace in the financial world, especially among institutional investors (Saigol and Burgess, 2006). Infrastructure is increasingly a global market, with the main equity players located in Australia and Canada, often using intermediary investment banks in London. Some large engineering and construction companies have also moved into the equity business, such as Canadian SNC-Lavalin and Spanish Ferrovial in the late 1990s, and GE Infrastructure in 2005 (Deutsch, 2005). In 2006, American Wall Street firms have turned their attention to the sector. With the focus on the financial industry moving into the ownership and management of infrastructures, this article concentrates on the leading investment bank in the field that has both the longest and most active track record in the financial industry. Moreover, this bank owns 30% of the shares in the Canadian highway 407 toll road (Macquarie, 2006).

Macquarie Bank

The Australian Macquarie Bank is the global leader in the infrastructure finance field. It is a provider of investment, advisory and financial services in markets around the world, focusing mainly on real estate, corporate and structured finance, and infrastructure (Macquarie, 2006). They have been active in the Australian infrastructure sector since 1990, having 'accidentally' fallen into infrastructure as an asset class due to a lack of institutional equity they needed for projects at the time. Thereafter they leveraged their expertise through the establishment of specialized public and private infrastructure funds. Organizing infrastructure acquisition, funding and management, the Macquarie Bank Group has grown to include 900 professionals working solely in the infrastructure sector, managing approximately US \$45 billion in infrastructure equity invested in more than 100 assets across 25 countries. Major infrastructure sectors include toll roads, airports, telecommunications, water, rail, power and regulated assets, providing, for example, water services to 5.2 million people, gas to 6.9 million households and phone transmission services to 80 million people.

Macquarie's business model contains two parts. The first part is its traditional financial advice on mergers and acquisitions, and project finance transactions. Macquarie's corporate and structured finance team focuses on, for example, private finance initiatives (PFIs) in the UK and advises corporate and government clients. It also underwrites debt and equity for these clients. Secondly, Macquarie acts as principal, identifying and acquiring assets on behalf of its specialist funds. After acquisition, Macquarie Bank transfers the assets, often as seed assets, to the specialist funds where the assets are managed long term. These funds are diverse in geography (73% of the infrastructure assets are now international), contain both public and private funds, and are spread over various infrastructure sectors (Table 1).

With financial institutions focused foremost on risk management, the 'sunkness' and embeddedness of urban infrastructure creates the challenge of designing financial instruments that mirror the type of assets. Only a few institutional investors (and certainly no retail investor) can internally manage such an approach, and many rely on

Table 1 Macquarie specialized infrastructure funds

Fund	Public/private	Geography	Sectors	Since
MIG – Macquarie Infrastructure Group	Public, listed on ASX	Australia, UK, Canada, USA, Germany, Portugal, France	Toll roads	1996
MAP – Macquarie Airports	Public, listed on ASX	Australia, UK, Belgium, Italy, Denmark	Airports, large interest in MAG	2001
MCG – Macquarie Communications Infrastructure Group	Public, listed on ASX	Australia, UK, OECD or similar	Communications infrastructure	2002
MPT – Macquarie Power and Infrastructure Income Fund	Public, listed on Toronto SE	Canada	Energy and infra businesses	2004
DUET – Diversified Utility and Energy Trust	Public, listed on ASX	Australia/New Zealand	Utility and energy	2004
MIC – Macquarie Infrastructure Company	Public, listed on NYSE	USA, UK, Australia/OECD	Infra businesses, toll roads, utilities, communications	2004
MCAG – Macquarie Capital Alliance Group	Public, listed on ASX	Bias to OECD but ability in developing countries. Currently Australia, UK, Netherlands	Co-invest with Macquarie in media and retirement facilities	2005
MIF – Macquarie International Infrastructure Fund	Public, listed on Singapore SGX	Australia, Europe, USA through investments in MIC, MEIF, MAP, MCIG, DUET, Germany, Canada, China	Toll roads, tunnels, rail, (renewable) utilities, ports	2005
MMG – Macquarie Media Group	Public, listed on ASX	Bias to OECD-like countries, Australia	Media assets	2005
MKIF – Macquarie Korea Infrastructure Fund ^a	Public, listed Korea KRX and LSE	Korea	Toll roads, tunnels, bridges, subways	2006

MAG – Macquarie Airports Group	Private, unlisted ^b	UK, Australia, Italy, OECD countries or similar	Airports	2001
GIF – Global Infrastructure Fund	Private, unlisted	Australia, Italy	Tunnels, airports	–
MEAP – Macquarie Essential Assets Partnership	Private, unlisted	North America only: Canada, USA	Utilities, roads	2003
SAIF – South Africa Infrastructure Fund ^c	Private, unlisted	Sub-Saharan Africa, mainly South Africa	Toll roads, rail, airports, telecom	2000
AIF – African Infrastructure Investment Fund ^c	Private, unlisted	South Africa	Roads, power, telecom, rail, ports, water and social infrastructure	2004
MEIF I – Macquarie European Infrastructure Fund I	Private, unlisted	European OECD countries: UK, Belgium, France, Sweden, Netherlands	Utilities, rail, airports, communications	2004
MEIF II	Private, unlisted	European OECD countries	Utilities, rail, airports, communications	2005
MEIF retail fund	Private, unlisted	European OECD countries	A private fund for German retail investors, investing into MEIF assets	2006
MIP – Macquarie Infrastructure Partners	Private, unlisted	North America only	Toll roads (delisted North American MIG roads, mostly mature assets)	2006

^aPreviously unlisted Macquarie Korean Roads Infrastructure Fund.

^bUnlisted: usually an unlisted 10-year closed end fund, sometimes 15 years.

^cJoint venture between Macquarie and local fund. Usually fund has been in existence prior to Macquarie activity.

Sources: compiled from Macquarie Bank website (http://www.macquarie.com.au/corporations/sipc/infrastructure_funds/overview.htm) and individual funds' websites.

external financial institutions with sophisticated financial products that are engineered to spin out over a long period of time. Some funds are unlisted, available only to the large (mostly institutional) investors but with the development of listed funds, anyone can buy infrastructure securities through a broker. As evident from Table 1, Macquarie operates nine listed and nine unlisted infrastructure funds (Macquarie, 2006). The more than 100 assets that Macquarie owns in 25 different countries are often cross-listed in various funds. The purchase of 70% of the Brussels airport in 2004, for example, is part of both Macquarie Airports and the Macquarie European Infrastructure Fund. Macquarie Airports has direct investments in airports and indirect investments through a 61.6% stake in the unlisted Macquarie Airports Group. The focus in the next section is on the Macquarie Infrastructure Group ('MIG'), the largest listed infrastructure fund in the world at US \$7.3 billion. It is not only the bank's oldest and most extensive infrastructure fund, but it owns a stake in the 407 in the Greater Toronto Area.

Macquarie Infrastructure Group

Despite being part of a financial institution, MIG is one of the largest private developers of toll roads in the world. It was formed as a listed fund in 1996 as a result of the lack of large-scale equity commitments by Australian investors, as infrastructure was a small, unknown field and institutional investors were (and are still) of relatively small size in Australia. With three toll roads (M5, M2, M1) as part of the Sydney orbital and the Melbourne City link as seed assets in 1996, the fund expanded into the UK (M6 toll and Yorkshire shadow-toll link) and Portugal (Tagus river toll bridges) in 1999, Germany (Warnow tunnel) and Australia (M4 Sydney) in 2000, Canada (407) in 2001, Australia (M7 in Sydney) in 2003, the USA (SR125 South in San Diego, Chicago Skyway and Dulles Greenway) in 2003 and 2005, and France (APPR) and the USA (Indiana Toll Road) in 2006. During 2002–4 MIG also held investments in 13 Spanish, Portuguese and Chilean toll roads through its 40% stake in Spanish Grupo Ferroviario subsidiary Cintra, which was floated on the Spanish stock exchanges in October 2004. MIG holds all of its current investments, 14 roads in seven countries on three continents, through equity stakes in the concession companies, usually a consortium of financiers, construction, engineering and operating companies that set up a business to operate an infrastructure asset. MIG actively searches for investments in OECD-like countries that will fit their infrastructure investment criteria (MIG, 2006), embracing the globalization of financial instruments that has resulted from the financialization of urban infrastructures in recent years.

Moreover, Australians have become so familiar with and expectant of high returns on toll roads, Macquarie stock prices have risen to unprecedented heights (Moss, 2005). Starting off in 1996 for A \$1 per share, prices in early 2005 were around A \$3.5 and have soared to around the A \$4 mark. In various years since its creation and listing, MIG has been the best performing stock on the ASX 100. More specifically, total shareholder returns since December 1995 on the listed infrastructure funds were more than 450%, profits over 2004 were up 67%, international income was 44% of first quarter profit in 2005 and Macquarie Bank raised approximately US \$12.1 billion for specialist funds in 2005 and close to US \$19 billion in 2006 in Australia, Singapore, Korea, Canada, Europe and the USA, making it one of the fastest growing banks in the world (Moss, 2005). The bank is fully 'exploiting the state we're in' as the *Financial Times* professed in 2003 (Coggan, 2003).

Networked financial products

Infrastructure provisions, whether roads, rail routes, airports, water systems, gas distribution systems or even electronic communication systems, are thus increasingly financial products managed by some of the world's largest financial institutions. These institutions are creating structured infrastructure portfolios whereby, in the Macquarie

case, the Chicago Skyway toll road is more closely connected in governance terms to the M2 in Sydney or the highway 407 in Toronto than to its neighbouring roads and highways in Chicago itself: this is achieved via strict adherence to management in line with in-house financial models developed by research analysts of the global equity owner. Other local public highways may instead be governed in line with public, political or environmental policies. An additional outcome of the transfer of ownership and responsibility of urban infrastructure is that in the case of the Chicago Skyway, the 50-year concession is an entirely foreign 'adventure'. The equity is owned by Spanish Cintra and Australian Macquarie, with the debt syndication undertaken by French and Spanish investment banks.

Providing urban transport with competing interests

Toll roads are being introduced globally as the means to manage congestion, fund infrastructure improvements, and bring in outside investment to fix budget problems. As the 'pay per' revolution spreads through transponders and video-imaging (Mosco, 1988; Graham and Marvin, 2001), this technology creates monitoring opportunities which further translate into predictable revenue streams. The 407 is not only a large privatization, but is one of the most technologically advanced.

Selling off an urban landscape

As early as 1950, highway 407 was envisaged as a highway that would be built to provide fast and uncongested transportation to residents of a growing Toronto. Construction utilizing private contractors was started in 1992, but due to large provincial deficits this construction was not slated to be finished until 2020 (Mylvaganam and Borins, 2004).⁴ When C \$1 billion in capital was required, discussions arose over whether the private sector might also be able to provide financing. The provincial NDP government considered a 'user pay' philosophy, as tolls were acceptable to the public if they were applied toward maintaining the facility. The NDP government did not, however, accept private consortia's request for provincial guarantees. Only when self-financed, would private sector involvement lower costs. A special-purpose Crown corporation was created in 1994, leaving the government to develop the toll road. The first 36 km highway opened in June 1997, with the financing guaranteed by the revenue stream. By September 1998 all 69 km were open. The government had borne the capital, technological, and market risks for the project, and so no fallback plans were needed (Mylvaganam and Borins, 2004) and between October 1997 and February 1999, the number of 407 users doubled from 100,000 to 204,000.

Premier Harris had been elected in 1995 on his 'common sense revolution' platform, which promised to privatize many government operations (see Keil, 2002). With elections expected in early 1999, the government wanted to show movement towards both a balanced budget and demonstrate its ideological commitment to privatization. The 407 was selected as a suitable candidate for an IPO or outright privatization in February 1998, driven by provincial budgetary problems, as the deficit came close to C \$5 billion, while the government simultaneously hoped to cut taxes and boost spending in health before the elections (Mylvaganam and Borins, 2004). The Harris Privatization Secretariat and its advisors had a clear preference for an outright sale of highway 407, but knew this was not politically acceptable. Instead, they decided to create as long a lease as possible, simulating a sale and bringing in most revenue (Mylvaganam and Borins, 2004). Bidders were asked to propose the price they would pay for 69 km of highway and

4 Their book *'If you build it'. Business, government and Ontario's electronic toll highway* provides an excellent overview of the development of the 407.

for the right to construct an eastern expansion (CGLA, 1999). Four consortia put together bids, with most groups 'scouring the globe for equity'.⁵ Some involved in the bidding process state, looking back, that the 407 'was worth more than any of us could collect'. In order to establish the length of the lease, they asked the four bidders for 'non-binding indicative bids' on lease periods of 55, 99 and 199 years, claiming the longest bid would show the highest price. Members of bidding consortia have later stated, however, that asking financial specialists to indicate a price for an asset past 49 years is more or less impossible, as assets are worth zero after that time. But as revenue maximization was the government's goal, the groups, went on to add approx. C \$100 million to their C\$2 billion plus bids for the 99- and 199-year leases. Critics argue that by demonstrating longer leases were of value, bidders could influence the length of the concession period. Despite the cabinet's initial preference for 35 years, it opted for the 99-year lease due to its revenue maximization aim.

Since two bids were only C \$5 million apart a re-bid took place.⁶ The bid team 407 International ('407 Int. '), with the lower bid in the first round, won it with an offer of C \$3.107 billion for the 99-year lease (*The Gazette*, 1999). This consortium was made up of equity investors Cintra from Spain, the operator and subsidiary of toll road construction company Grupo Ferrovial (61.3%), Canadian engineering firm SNC-Lavalin (22.6%) and Canadian Capital d'Amérique, a private equity subsidiary of pension fund Caisse de Depot de Quebec (16.1%).⁷ The 407 became the 14th toll road owned and operated by Cintra. The winning bid of C \$3.1 billion was spun as a triumph by the provincial government. Indeed, it was a substantial premium over the construction cost of C \$1.5 billion but critics saw it as a rotten deal for commuters (*Toronto Star*, 1999a). With the elections in mind, the deal was closed the day the provincial elections were called. The C \$1.6 billion net proceeds from the sale were included in revenue for the fiscal year 1999–2000, with the budget projecting a deficit of C \$2.1 billion, C \$500 million 'better' than the initial deficit target without the 407 proceeds (Hansard, 1999). This budget featured additional spending on health care and a tax rebate for every taxpayer, and was sent out by mail during the election campaign (Mylvaganam and Borins, 2004).

In 2001, Macquarie, unsuccessful as a partner in the initial bid, bought 40% of shares in Cintra and went on to buy Caisse's direct shares in 407 Int.⁸ With assets in Australia, the UK, Germany and Portugal, this became MIG's 10th toll road. During the Cintra IPO in October 2004, Macquarie negotiated a further direct interest in the 407ETR and became the second largest direct shareholder with 30%. This asset is currently the most important MIG investment, with the 407 as 29.9% of the entire MIG portfolio (Figure 2).

Cintra and MIG went on to win the Chicago Skyway bid in 2004 and the Indiana toll road in 2006. Various Canadian institutional investors were also involved in the 407 transaction, with pension fund Caisse de Depot de Quebec in the initial winning bid, OMERS pension fund involved in one of the losing bids, and the Ontario Teachers Pension Plan (OTPP) as one of the major investors in MIG as a significant underwriter of C \$650 million of 407 debt through a private placement (*Toronto Star*, 1999b). Considered the world's largest institutional investor in infrastructure, OTPP has investments in airports in Britain and Australia, gas and oil pipelines in Alberta and the USA, the electrical transmission system in Alberta, and power generation in the US (OTPP, 2004).

5 One bidder had to pull out due to lack of financing since there was not enough capital available in the world markets to support four bids. Some believe the bids could have been higher had the equity been concentrated in two final bidders.

6 Despite one of those bids including additional construction to another highway of C \$1.5 billion.

7 The three equity holders shared C \$775 million in equity and financed C \$2.3 billion in debt on the market in 1999. Multiple lenders were available (407ETR, 2005).

8 SNC-Lavalin sold 5.6% of its shares to Cintra, receiving enough cash to cover the initial equity investment. Macquarie's financial advisory team worked on this transaction.

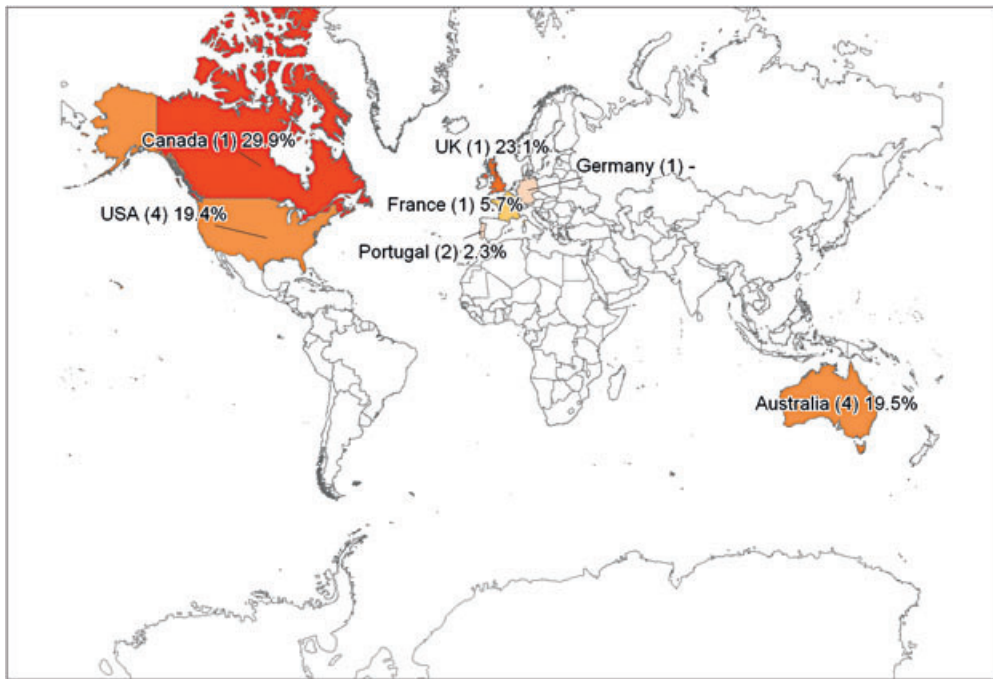


Figure 2 Infrastructure assets as percentage of MIG portfolio (source: author, based on the MIG investment portfolio in http://www.macquarie.com.au/au/corporations/sfpc/infrastructure_funds_overview.htm)

A unique 'watershed' transaction

The 407 express toll route ('ETR', as the operator was named by the consortium) has been refinanced various times, with higher levels of debt versus equity. Refinancing decreases the capital costs for the owners, raising the long-term returns on the investment. It has also been expanded both east and west under the contract, with a possibility of expansion further east in the near future (Figure 3). The value of the road has increased substantially as it was built for C \$1.5 billion, initially valued at C \$2.8 billion by the government, sold for C \$3.1 billion to 407 Int., valued in 2002 at C \$6.3 billion (through a calculation of the price of the stake from SNC to Cintra) and is currently valued at around C \$6.4 billion. Now that it has been established that such a road can attract private owners and bidding is becoming competitive, future toll roads will not have the same risks calculated into the financial modelling, prices for the roads will be higher and returns lower.⁹ Highway 407ETR is now 108 km long with a recent 1-day record of 397,860 users (on 24 June 2005) and 99.5 million trips made in 2004 (407ETR, 2005). The region surrounding the 407ETR encompasses a growing population of 5.5 million and new housing and commercial centres are being developed along the road, resulting in travel demand growing stronger than expected. This road is now a necessity to many people in the '905-belt' in their commute to work, and is becoming congested. It reached its planned volume after 7 years within 3.5 years, and its west–east traffic flow has altered the Toronto region's traffic patterns: for the first time in the history of the City of Toronto more people commute across town rather than into the

⁹ It had not been proven the toll road would work. Critics argue that the previous two years of tolling and the congestion relief policy made the road attractive to investors in the first place. If the government had not been guided by political expedience, there would have been more traffic data, less risk for private investors, and a higher sale price.



Figure 3 Highway 407 (108 km) bypassing the city of Toronto (source: author, 2006)

downtown. The 1950s vision of a road cutting across the Toronto landscape, providing fast and uncongested transportation to residents of a growing Toronto, has rather proven to be the engine of Toronto's current growth and can be argued to be steering the region's spatial transformation.

Regulated traffic, unregulated tolls

Not only did the consortium acquire an actual physical road, the main element of the sale was the concession to toll. The toll on the 407ETR is collected via transponders, with 80% of users preferring this method. If a car does not have a transponder, video imaging is used to determine the license plate number, 407ETR pays the ministry of transport for ownership info, and the owner is finally billed for using the toll road. Thus, revenues are fairly certain to be collected and the value of the road is calculated based on the expected future stream of revenues as derived from traffic forecasts. The aim of the government was to create an uncongested commuter route and the concession contract contains both tolling restrictions and conditions for lane expansions, aiming to ease congestion in the region by ensuring that motorists use the 407ETR and traffic continues to flow.¹⁰

As described above, the Harris government's privatization of the 407 was driven in part by ideology. Some commentators have suggested that out of a desire to regulate traffic and toll levels entirely on the basis of market forces, the Harris government gave

¹⁰ The Conservatives expected that the tolls would be adjusted by 2% per year plus inflation for the first 15 years and thereafter by inflation only: 'tolls would not skyrocket because new owners need drivers to pay off debt. The limit is what the market is prepared to pay' (Sampson in Lindgren, 1999). Public servants were horrified and believe they did not understand the agreement they had approved (Mylvaganam and Borins, 2004: 94).

the concessionaire an essentially unlimited ability to raise tolls. Toll increases are regulated under a formula described in schedule 22 to the concession agreement, the Tolling, Congestion Relief and Expansion Agreement (TCREA). It described a tolling mechanism designed to combat congestion on the 407, and allow capacity to expand with market demand. The TCREA required the establishment of benchmark traffic flow measurements based on actual measurements in a base year, which are adjusted annually by a growth index. If the benchmark traffic volumes are not met, tolls cannot be increased beyond the 'toll threshold', which effectively establishes a floor on toll prices. This was a safeguard installed by the province to make sure that a concessionaire seeking a profit would not raise tolls exorbitantly in reaction to inelastic demand, and cause traffic levels to drop. Each year's toll threshold is determined by adjusting the prior year's threshold rate by the consumer price index (CPI), plus 2%. The initial toll rate on the 407 was that set by the government prior to the private transaction. If annual benchmark traffic volumes are met, market forces serve as the primary limit on toll increases; toll levels are determined by what drivers are willing to pay. In the section 'congestion relief' the TCREA establishes financial penalties to be paid by the concessionaire in the event congestion occurs. 'Congestion' is a term of art; one of the formulae describes congestion as a situation where traffic volumes drop below the benchmark volume and tolls are above the threshold level, but the remaining formulae are designed to discourage heavy traffic volumes. The TCREA also obliges the concessionaire to expand highway capacity when traffic volumes within a section exceed certain levels, up to the point when the 407 reaches its maximum designed capacity.

Infrastructure as a geopolitical issue

The privatization of the toll road in Toronto led to consumer dissatisfaction and political turmoil in the province. Five toll raises in various categories occurred without government approval and in full compliance with the agreement under the Conservative government. The sixth toll raise (of 7.7%), proposed in February of 2004, was opposed by the new Liberal government. Ontario Liberal Premier McGuinty insisted that the province has the right to approve all rate increases, not believing any government would have given a private consortium the right to raise tolls for 99 years (Babbage, 2004). To support this argument the Liberals claim that the described 'material' changes that require approval by the government should not only include physical changes but also tolling changes. Moreover, the pledge to roll back the tolls on the 407ETR was part of the election platform on which the Liberals won the provincial elections, with many suburbanites who use the 407 frequently, voting for them (Lindgren, 2004). The provincial government used various legal means to stop the toll increases. Besides disputing the control of toll rates, litigation expanded to issues over base year designation, traffic count audits and license plate denial (Leslie, 2005; Lindgren, 2005).

Veto threats

The global financial community and the EU were implicated in this row over toll road pricing, as the ongoing disputes and notices of default led to Spanish government involvement. The European Union presented complaints before the Canadian authorities during the first six months of 2004, culminating in August 2004 with the European Commission working 'to resolve a dispute between Canada and a Spanish-led consortium seeking to raise tolls on a highway it operates in Ontario' (EU spokeswoman Mochan in CPN, 2004). The impasse was argued to potentially derail negotiations over the EU-Canada trade and investment agreement discussed in March 2004. Various news outlets and European investment banks suggested the Spanish government threatened to veto the start of talks on this proposed trade agreement if the Spanish representatives in

the consortium continued to face legal challenges from the Ontario provincial government.¹¹ Spain and the EU declined to comment, but the Ontario dispute highlighted their concerns about the province's politics being allowed to override a contract, and Spain 'is following the province's actions closely' (*Phoenix Star*, 2004). As the proposed trade agreement was to further trade liberalization between the EU and Canada, European investment bank Dresdner Kleinwort Wasserstein argued at the time that the failure of the federal government of Canada to get its provincial Ontario government to abide by its legal obligations under the toll contract called into question the willingness of Canada to honour treaty obligations and to allow commercial disputes to be settled according to law (CPN, 2004). 'Spain's threat to block the Canada–EU trade deals shows how interconnected global trade and local politics have become in the 21st century' (*Phoenix Star*, 2004: 11). Little progress was made public on this diplomatic dispute, but the outcome in the Ontario courts was considered important to Canada.

Litigation continued into 2006 and an 'amicable settlement' of all existing disputes and litigation between the parties was announced on 31 March 2006. The government agreed to drop its appeal of the toll-setting dispute, as well as its appeal of another arbitration decision that had denied the government's challenge to 407 Int.'s selection of 2002 as the baseline year for traffic data. The parties announced their agreement to work together to improve customer service and some measure in the settlement could point to a triumph for government: a C\$40 million customer benefit program for heavy users, a reduction in off-peak tolls for trucks and acceleration of new construction — bringing 10 years of scheduled new capacity on line within 3 years. The government described the outcome as a 'better deal for drivers' while 407 Int. described it as 'fair', and in December 2006 announced a toll increase effective from 1 February 2007.

Glocal governance mechanisms

A glocal owner manages its infrastructure assets through a contract drafted by a regulator, the government, or a self-regulated mechanism. In light of heightened trade liberalization, this case study demonstrates how global equity players are using international norms of commercial law as the governing mechanism for infrastructure investments. By abiding by contractual obligations, global investors are afforded opportunities to invest in former community assets that are increasingly outside of the local political sphere, yet affect the local urban landscape. Through the construction of such a 'glocal' product, the Ontario Conservative provincial government was intent on intensifying the use of global equity investments in the development of a customized infrastructure. Simultaneously, however, the self-regulated contract and the 'watershed' transaction have led to dissatisfaction in Ontario with the concept of private financing and public–private partnerships. The 407 case created large-scale public discussions in Ontario about using private finance for other projects, such as hospitals, utilities and schools. The McGuinty government has, despite legally challenging the 407 Int. over the toll increases in closed arbitration courts in Ontario, invited pension funds to discuss potential 'alternative financing' of additional infrastructures with the Minister of Public Infrastructure Renewal (McKendrick, 2005) since there has been long-term underfunding of infrastructures in Ontario and increased international activity by Canadian institutional investors in the asset class 'infrastructure'. However, due to these political issues, many institutional investors now prefer investment outside Ontario, and even outside Canada. The rules and regulations abroad are clearer and their activities not as politically and publicly sensitive. Despite the legal battle, some deals are still being signed for other projects in Ontario, and private investors are cautiously viewing the developments framed by some civil servants as 'just politics'. Public sector unions

11 Interestingly, at that time the Australian MIG was indirectly the largest shareholder with 40% of Cintra shares and 16.7% direct shares.

are, however, fighting the use of private finance for infrastructures, arguing that the privatization of essential services will mean a loss of jobs (CUPE, 2004).

Conclusion

This article illustrated the financialization of urban infrastructures and the related globalization of financial instruments. It provided an empirical study of the reconfigurations of the urban infrastructure landscape (Swyngedouw, 1992; Brenner, 1998). Infrastructure is becoming a financial product as a result of current political economic frameworks, and this remaking of space has fuelled the rise of a global infrastructure market. At the same time, the rise of this market produces space, as it operates in and through this remaking of space, and this rise has ensuing spatial consequences. Thus, not only are large amounts of capital available through pension funds, but the political decision to do away with the collective provision of infrastructures has fuelled the rise of private capital in infrastructure assets. This research also contributes to the groundbreaking work by Graham and Marvin (2001) on the splintering of cities into specific networks, or splintering urbanism. By highlighting how infrastructure capital is currently travelling the globe, especially via the Australian investment bank Macquarie, a deeper understanding of the contemporary development of urban technological networks was attained. The urban environment that was built collectively after the second world war can be seen to be splintering if investigated from this level. If the perspective of financial institutions is recognized in these reconfiguring urban landscapes, financial institutions are interlinking the geographically diverse assets into global or regional portfolios at the international level as financial institutions' specialist funds have expanded to comprise international portfolios of roads, airports and utilities.

The Toronto case also demonstrated the contradictory effects of a governance mechanism that was designed to manage infrastructure policy in the Greater Toronto area, yet still closely follows ideological principals. Cities that engage in shifts of public goods into private property often do so to manage governance solutions in the interim. The 407 is proof that new conflicts occur when unbundling is performed on the basis of such short-term and ideological mandates. The short-term objective of raising money before an election to fix the budget and demonstrate an adherence to ideology resulted in a failure to serve the public's long-term interest. Rather than serving the public, politicians' time horizons are increasingly aligned to perpetuate their electoral mandates. Many local governments around the globe are applying public-private partnerships that try to move beyond such short-term political incentives, with the government setting the rules, appointing independent regulators, and setting the design requirements for a new piece of infrastructure. When it comes to setting adequate glocal governance approaches to shape the development of urban infrastructures in a sustainable way, more research of the current increase in the demand for infrastructure by private infrastructure capital and their subsequent purchase and governance of assets globally would assist the formulation of glocal governance rules.

With the opening up to international infrastructure capital, non-local owners, by carrying out contractual obligations, play an increasing role in the governance of infrastructure projects at the urban scale, and, as such, a 'glocal' governance is developing based on management via strict adherence to international legal norms. With private toll roads materializing and being contemplated in more countries, Clark (2000; 2005) argues that financial institutions could play a larger role in the future topography of urban infrastructure landscapes. Financial deregulation and regulated contracts are spurring the rise of locally unbundled but globally interlinked urban infrastructures. In addition, toll roads, airports, electricity distribution and water services in urban areas are offering investors predictable and stable returns despite competing 'free' alternatives (i.e. non-toll roads), as congestion is rising and high-tech video imaging is implemented more

easily. The rise of this market has just begun, and a reconceptualization of the urban infrastructure landscape will develop in the next few years.

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Résumé

La fourniture d'infrastructures urbaines est de plus en plus souvent transférée du domaine public vers le privé, la valeur des villes et régions étant estimée simplement d'un trimestre sur l'autre. L'argumentation de cet article se présente en trois volets : le paysage des infrastructures urbaines connaît une financiarisation ; par ailleurs, dans le prolongement de la description de Graham et Marvin concernant la désintégration locale des réseaux d'infrastructures, ces dernières se trouvent directement liées au niveau mondial via des fonds internationaux spécialisés en infrastructures; enfin, les propriétaires non-locaux jouent, en respectant les obligations contractuelles, un rôle accru dans la gouvernance des projets d'infrastructure à l'échelle urbaine, ce qui génère une forme 'glocale' de gouvernance. Ces propos sont illustrés par une étude sur l'autoroute privée 407 de la banlieue de Toronto, la principale banque d'investissement en 'infrastructure' en étant l'un des propriétaires internationaux. Compte tenu de

l'application plus fréquente de normes de droit commercial internationales et du cycle fluctuant des politiques locales, nationales et supranationales, la tarification du péage a fait l'objet d'une controverse, la politique provinciale mettant en cause un contrat 'autorégulateur' qui encourageait les propriétaires privés à augmenter les péages en fonction de seuils de circulation et de tarifs, de manière à créer un décongestionnement du trafic sur cette autoroute. Les usagers, les gouvernements canadiens provincial et fédéral, et même l'Union européenne, ont été parties prenantes.