

Calatrava in Athens. The architect as financier and the iconic city

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Abstract

Today, iconic architecture is the dominant mode of contemporary public life, but the wishes of the European city and role of public space are based on financial emergencies—even if the term ‘financial’ is screened out by the mesmeric distraction of such spectral, prodigal buildings. While iconic architecture parades as visual stunt—an “avant garde” project of the digital image that violently pushes physics and engineering to its limits—such projects are only made possible by giant debt arrangements; and, as I will argue, their primary agenda is to solve serious financial problems. Yet, not only do these projects often fail to generate the future income (fictitious capital) promised and thus leave the town with an impossible 30-year mortgage that might never be repaid, iconic developments also have the power to contribute to distortions of capital (economic crises) beyond the project and the city itself. This essay will examine the Olympic development and iconic objects designed by Santiago Calatrava for the Athens Summer Games in 2004, and the dual Olympic-budget crisis and national crisis that converged on Calatrava’s project. After the games, the Greek Olympic development attracted considerable financial critique from outside the architectural discipline: economists debated how the Olympic development was implicated in the Greek crisis, and a parallel Left protest-movement against Calatrava, the public figure, for financial corruption through iconic projects gained traction. Regardless of the veracity of these arraignments; in Greece, I propose the Olympic development became a visual cipher for the ongoing Greek crisis. Calatrava’s project illustrates the ways in which National crises in Europe today are played out via architectural icons, and the transformation of public space into both a financial medium and narrator of financial crisis.

Keywords: Calatrava; iconic architecture; Greek Olympics; financialisation; moral hazard.

To cite this article:

Brott S. (2017). Calatrava in Athens: The Architect as Financier and the Iconic City, *The Journal of Public Space*, 2(1), 15-32, DOI: 10.5204/jps.v2i1.47

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“Today the City is sinking under its own excesses. That is where the architect died and the businessman was born (Tremlett, 2012).
Miquel Alberlola in El País

“The \$15 Billion Greece invested has had only limited urban benefits for Athens in the long run. I came to the conclusion that there is no bigger bubble than the Olympic Games (Berg, 2016).
Roy Panagiotopoulou

“Of course it cannot compete with Stade de France or New Wembley. These are just very good stadia. But OAKA is a monument of modern Art (Anonymous, 2016).
Anonymous, Forum Post

The script for global iconic architectural developments is by now as hackneyed as it is untrue: an insolvent government promises the villagers a world class (global) city through a spectacular mega-project that will “world” (urbanise) the town and raise the public’s status to cosmopolitan (urban and global) (Goldman, 2015). Spain’s failed attempt to save its post-industrial town Bilbao through the Abandoibarra development—that staged Frank Gehry’s Guggenheim museum, the first iconic building, along the Nervión River in 1997 - is an object-lesson in Europe today (Plöger, 2008). To clarify, the *iconic* does not refer to a disciplinary canon of historical monuments from the past, but to a new capitalist paradigm since the end of the 1990s, where cities have undertaken publicly-funded debt-fuelled megaprojects of a spectacular financial, technological, and formal *scale* heretofore unseen, which has fundamentally transformed the operation of public space and our relationship with the city. Historically, public space in the west has always been fabricated around a central monument, which visualised the psychic, political and social wishes of the city. Today, iconic architecture is the dominant mode of contemporary public life, but the wishes of the European city and role of public space are manifestly financial - based on financial emergencies - even if the term ‘financial’ is screened out by the mesmeric distraction of such spectral, prodigal buildings - as I have written about previously (Brott, 2012, 2017) - under the ideology of what I call the iconic architecture industry. The iconic architecture industry in Europe can be defined as a complex machine for the realisation of iconic projects enabled by three key agents: the Eurozone government or city, the creditors and global investment banks, and importantly the industrialists: the architects, technicians, construction, and development firms. While iconic architecture parades as visual stunt - an “avant garde” project of the digital image that violently pushes physics and engineering to its limits - such projects are only made possible by giant debt arrangements - and, importantly, as I will argue, their primary agenda is *to solve serious financial problems*. The conflict between these last two clauses has never been more apparent. Governments vow the iconic development will attract tourism, provide jobs, stimulate the economy, and all importantly perform as an income producing asset through real estate speculation and new forms of architectural financialisation that are the premise of the iconic architecture industry (Guironnet & Halbert, 2014; Moreno, 2014, p. 253; Shin, 2013). Yet, not only do these projects often fail to generate the future income (fictitious capital) promised (Beltran, 2012; Govan, 2012), and thus leave the town with an impossible 30-year mortgage that might never be repaid, iconic developments also have the power to contribute to distortions of capital (economic crises) beyond the project and the city

itself. A principal framework for understanding the iconic architecture industry today is global finance and its current crises.

The preeminent case study for iconic architecture as a financial intervention in the contemporary city is the Olympic development and iconic objects designed by Santiago Calatrava for the Athens Summer Games in 2004, and the dual Olympic-budget crisis and national crisis that converged on Calatrava's project. After the games, the Greek Olympic development attracted considerable financial critique from outside the architectural discipline: economists even debated how the Olympic development was implicated in the Greek crisis (Berlin, 2015; Graham Dunbar, 2010; Malkoutzis, 2012); and a parallel Left protest-movement against Calatrava, the public figure, for financial corruption through iconic projects gained traction. Regardless of the veracity of these complex arraignments and the causalities they adduce; in Greece, I would like to emphasise that the Olympic architectural development became a visual cipher for the ongoing Greek crisis. Calatrava's project illustrates the ways in which National crises in Europe today are played out via the monuments of the iconic architecture industry, and the transformation of public space into a real financial medium and also narrator of financial crisis. To be clear, the Olympic development as a complex is an example of public space *par excellence*, the park as a whole, its stadia, plazas, and monuments, both jointly and severally function in the classical sense as space(s) for public performance, aesthetic encounter and the concentration and entertainment of mass audiences. That is according to the classical understanding of public space, which engenders a dialectical encounter between the people and the city. But as I will demonstrate, the iconic episteme and Calatrava's iconic development deconstructs this dialectic as it de-territorializes public space – alienating the people from public space by converting architecture and the city into an instrument of financialisation. In this narrative, the public protest against the project is a cry to have public space and the city itself liberated from advanced capital and returned to the people. This essay will discuss the alleged relationship between the Olympic project and the Greek Crisis; the conception of the iconic architect as financier and agent of crisis; and, finally, the financial meanings of Calatrava's development as an icon of financial crisis. While there is a vast literature on financialisation of public space in economic literature, this is the first paper that demonstrates the crucial role of iconic architecture in the problem. Specifically, it translates the tabloid media critique of Calatrava – of which there are many examples – into scholarly architectural discourse. Third, and most importantly, this is the first essay to examine the financial meanings of Calatrava's formalism, for an architectural audience, and the way in which the iconic image functions as a financial medium that screens the financial crises of the city. In doing so, it also highlights the transformation of the iconic architect into a financier of a scale unseen heretofore.

Olympic expenditure and the Greek Crisis

Enjoy yourselves. When will we ever see days like these again? – said a volunteer welcoming visitors to Santiago Calatrava's Olympic stadium with a loudspeaker at the Greek Olympic Games in 2004 (Malkoutzis, 2012). In 2001, Calatrava received the commission to design the OAKA Olympic Athletic Center Of Athens (Athens Olympic Sport Complex) which included four iconic structures: a new roof for the original Olympic Stadium designed by Rudolf Moser in 1982 (Libby, 2004), suspended from two 45-meter high tubular steel arcs spanning 304 meters, and formed out of two curved polycarbonate leaves that rest on just four points where the two steel arcs intersect; its twin, the Olympic Velodrome,

stadium built in 1991 for the Mediterranean Games, for which Calatrava designed a new roof; and, the Agora colonnade, a pair of white arcade skeletons that flicker in the light like a digital wire-frame, and the Nations Wall, a neo-constructivist tubular steel sculpture that literally quivers before the Agora, the two sculptural objects enclose the central Plaza of the Nations, an amphitheatre for 300,000 people (Arcspace.com, 2003). There are four entrance plazas, each is covered by a steel vaulted canopy. Two are situated at the ends of a main circulation path, which links the Velodrome and Olympic Stadium. The two other plazas, connect the Neratziotissa pedestrian bridge and Irinis Electric Railway Station to one of the Agoras (Arcspace.com, 2003).



Fig. 1. The Athens Olympic Sport Complex. This high-resolution image shows the Athens Olympic Sports Complex. Acquired on June 24, 2004, by Space Imaging's IKONOS satellite, the scene shows the complex in stunning detail, including the Olympic Stadium (home of the opening and closing ceremonies), the Olympic Aquatic Center, Olympic Indoor Hall (gymnastics and basketball finals), Olympic Tennis Center, and the Olympic Velodrome (cycling).

Credit: NASA Earth Observatory - <https://www.earthobservatory.nasa.gov/>

Source: <https://www.flickr.com/photos/gsfcr/7651367324>

Contemporary Athens is the result of a continuous post-war urbanisation process based on the self-replication of the polykatoikia building typology, the Greek translation of Le Corbusier's Domino system, a project that has unfolded continuously from the second world war until the start of construction for the 2004 Olympic Games from the end of

1990s (Aesopos, 2010). Yet Athens, unlike Bilbao or Detroit, is not a city whose urbanity is lacking, so Calatrava exhorted the need for an iconic infrastructural project in terms of a new modernity:

“The return of the Olympic Games to their country of origin provides an opportunity for renewal [...] a new means of modernization for Athens. [...] The renewal is possible, first of all, for Athens itself” (Libby, 2004). Of course, the project would turn out to be an unmitigated geopolitical and financial disaster. Not only did construction costs blow out of control—on the eve of the Greek financial crisis—making the Athens Games the most expensive, then, of all time (Malkoutzis, 2012) – there would be no positive financial legacy for the city post-2004 (Smith, 2012).

However it is important to proceed with caution. These financial criticisms of the cost of Calatrava’s project do not take into consideration direct and indirect income, or the ratio between external and internal benefits both of which are very difficult to calculate.

Nonetheless, the project demonstrates an order of financial catastrophe that cannot be dismissed by these considerations. After the games, the expensive structures in Southern Athens would be abandoned for ten years. The 2-kilometer seafront-promenade that connected three Olympic stadia became a wasteland (Singer, 2014); and, Calatrava’s glorious stadium and the former Ellinikon International Airport (redeveloped into a sports park for the Summer games) would become a United Nations refugee camp, a “tent-city,” for Afghan refugees escaping the Taliban (Atika Shubert, 2016). Instead of *the city’s hopes and wishes for a “good” modernisation; in Calatrava’s unaltered language of post-war urban renewal*, the Athenian megaproject heralded a “bad” modernisation, becoming a trope for the ‘bad life’ in Europe in these neo-capitalist times.

Bloomberg Media and numerous economists viewed the Olympics as *causative* in its tract “How the 2004 Olympics Triggered Greece’s Financial Crisis” (Berlin, 2015; Graham Dunbar, 2010; Malkoutzis, 2012). The gist of the Bloomberg essay, that the cost of the games €9 billion (\$11.6 billion today), “*helped push Greece into a fiscal black hole.*” Finance minister Giorgos Alogoskoufis wrote that Olympic expenditure massively exceeded the original budget of 3 billion euros (Stevens, 2004). Even if this was only a fraction of Greece’s debt, the games were built on the foundation of a much larger financial crisis brewing in Greece. In 2004, Greece’s budget deficit breached European Union limits, which chastised Greece as “financially imprudent.”

“Greece’s 2004 deficit was 6.1 percent of gross domestic product, more than double the euro-zone limit, while debt reached 110.6 percent of gross domestic product, the highest in the European Union. Greece became the first EU country to be placed under fiscal monitoring by the European Commission, in 2005.” (Malkoutzis, 2012).

By 2009 Greece’s debt crisis exploded after which it sought two bailouts of €240bn from the European Union and International Monetary Fund (European Commission, 2014). Notwithstanding, as those same economists pointed out, the Olympic development alone could not have dismantled Greece’s economy, because Olympic expenditure was only a minute percentage of Greece’s total public debt in 2004, €168 billion. Yet the failure of the Greek Olympic development epitomised and it should be added also visualised in spectacular architectural fashion the structural problems that had plagued Greece for decades.

Guardian writer, and editor of *MacroPolis*, Nick Malkoutzis wrote “It’s not just a question of how much money was spent on the Olympics, it’s also how it was spent and where it came from.” Allocation of Olympic expenditure from the State Budget was €6 billion. 50% of the State Budget was used to construct the sporting venues (€3 billion) (N. Zonzilos, 2015), 30% went to infrastructural works, Urban regeneration and Road network. The final cost was 9 billion, which was triple the original budget. But this scale of Olympic spending was directly linked to wider geopolitical and financial forces in play: “After a period of austerity to tighten up its finances and qualify for euro entry in 2001, the Greek government loosened the purse strings once it entered the single currency. The games were just one of several areas where public spending was unchecked and funded by unsustainable borrowing” (Malkoutzis, 2012). This was one version of the story commonly used by economists to explain the Greek situation. But Robert B. Reich, former secretary of labor and Chancellor’s Professor of Public Policy at the University of California, Berkeley provides another:

“The crisis was exacerbated years ago by a deal with Goldman Sachs, engineered by Goldman’s current CEO, Lloyd Blankfein. Blankfein and his Goldman team helped Greece hide the true extent of its debt, and in the process almost doubled it” (Reich, 2015).

In 2001, Greece was seeking to conform to The Maastricht Treaty to be granted EU membership, which required Eurozone member states to demonstrate minimum benchmarks in their public balance sheet, but Greece was already deeply indebted. That year, global investment bank Goldman Sachs secretly brokered a loan to Greece of 2.8 billion euros made to look like an under-the-table “cross-currency swap”—a labyrinthine arrangement whereby “Greece’s foreign-currency debt was converted into a domestic currency obligation using a fictitious market exchange rate. As a result, about 2 percent of Greece’s debt magically disappeared from its national accounts” (Reich, 2015). Goldman Sachs was paid 600 million euros (\$793 million) for the deal. But it also “engaged in parallel derivatives trading with Greece by purchasing ‘credit default swaps’ betting that Greece would default on its loan,” thereby creating a situation of “moral hazard,” and the reason Goldman Sachs came under intense scrutiny for its instrumental role in the Greek crisis. According to *The Economic Times*: “Moral hazard is a situation in which one party gets involved in a risky event knowing that it is protected against the risk and the other party will incur the cost.” Goldman Sachs’ credit default swaps “increased Greece’s cost of borrowing, increasing interest rates for Greece, and raising the possibility of sovereign debt default and ultimately justifying brutal austerity measures” (Robinson, 2010, p. 5). As was widely publicised, the deal went wrong. Following the September 11 attacks in New York, “bond yields plunged, resulting in massive losses for Greece because of the algorithm Goldman used to compute the debt repayments under the swap. By 2005, Greece owed almost double what it had put into the deal, pushing its off-the-books debt from 2.8 billion euros to 5.1 billion” (Reich, 2015). Greece would pay twice for what happened in Manhattan.

In terms of construction spending, the Olympic stadium alone cost 300 million euros – 200 million over budget. While insignificant compared with the total Olympic deficit, to put this into perspective, 200 million euros today represents nearly half of Athens’ first repayment instalment to the International Monetary Fund IMF made in April 2015 (which sparked a public march on EU offices and confrontation with riot police under the “Write Off Debt Now” movement) (Stamouli, 2015a). The only two arenas where losing 200

million dollars is not mourned are Wall Street and the Iconic Architecture Industry. Calatrava's website provides an apologia in place of a typical architect's project description:

"Heightened security fears after the 9/11 attacks added unforeseen costs after Athens won its bid to become host city. Santiago Calatrava only received the commission on October 2001 and in addition to these difficulties and delays, rumors of catastrophic failures, including fears of a terrorist attack persisted throughout the construction and continued until the last days leading up to the opening ceremonies. This turned the Athens Olympics into the most costly and security-conscious games in modern history. The city lacked experience with constructing such large-scale projects"

(Santiago Calatrava Architects & Engineers, 2016).

9-11 in other words caused a spike in the Olympic construction deficit just as it doubled Greece's national debt through an interest rate spike. Calatrava's defensive tone is instructive of how the Olympic development became a lightning rod for the country's national troubles. But there is more to the story. Athens was allegedly idle for the first three of its seven-years of preparation, warned by the International Olympic Committee (IOC) in 2000 to tighten its organisation or risk losing the Games. "The country then embarked on a construction frenzy, paying lavishly for three shifts a day to ensure that venues were ready" (Tagaris, 2014). The stadium was only completed hours before the games began, and without a building permit (News.com.au, 2014). It should be obvious, the Olympics is not merely a 2-week sporting event, but a vast construction project completed in record time – a sped up modernity whose ill consequences for the public are magnified by the compression of time. Left critics argued the gigantism and extravagance of the Olympic mega-project "monumentalised the unmatched magnitude of money" (Traganou, 2008) – but even this straightforward analogy did not anticipate the scale of reversal Calatrava's project portended. Such gigantism today represents the black hole of capital in Europe, such as the gigantic financial debt that threatened to evacuate Greece from the EU. What iconic architecture monumentalises is the gigantism of transnational sovereign debt.

The Architect as Financier

Athens now has more than 12 abandoned or unutilised venues, and the Olympic village is a "concentrated zone of poverty and decay" (Berg, 2016). Perhaps it would be easy to excuse or isolate the architect and architecture itself from such a financial tale – as per the usual methodology of architectural historiography to remain strictly within the disciplinary genealogy of historical architectural typologies and formal languages. *Yet the transnational flows of money and the global crises they create form the very premise of the iconic project, which cannot be understood through a vertical history of aesthetic types otherwise known as the "canon."* Of course Calatrava had little say on how the structures would be used after the games, nor did he have any determination over the financial and political conditions in Greece that preceded his intervention, or the political and financial crisis that would blossom. Yet, it would also be disingenuous to claim Calatrava was the hapless artist hired to insert an iconic stadium and who then unwittingly found himself at the centre of a transnational financial disaster. Calatrava now has considerable experience in financial and budgetary crises with a career in mega-projects that spans decades in Europe and the US. First, as has been widely publicised, Calatrava is under fire by the political enemies of the conservative party in Greece for his financial mishandling of the Olympic development.

More broadly, Calatrava is notorious for going over budget and crippling the town that inherits his projects (Geenwoordspaans, 2016), and there is a growing movement against Calatrava Architects in Europe, as I will describe, with accusations of greed, systemic corruption, manipulation of finance, and creation of moral hazard. Government officials in Left-wing parties who oppose Calatrava's use of public funds have formed weblogs that Calatrava has attempted to sue. The biggest financial complaints have been made against Calatrava from the cities of Maastricht, New York and Valencia.

The World Trade Center Transportation Hub New York cost \$4 billion, double the original budget (Daley, 2013). Calatrava was paid US\$80 million (Walker, 2016). Losing 2 billion dollars of public money can no longer be viewed as accidental or simply "over budget" because of the magnitudes of funds being transferred. The Campus Maastricht project was abandoned after the original budget of 40 million € escalated to 235 million € and 66 million € of public funds had already been spent. Calatrava received his entire fee, as if the project had been completed, due to the contract the architect negotiated with Maastricht (thefullcalatrava, 2016). The most controversial of all, Valencia's *Ciudad de las Artes y las Ciencias* (CAC) The City of Arts and Sciences cost €900 million, triple the original budget (Blanco, 2016). Ignacio Blanco, an opposition member for the Valencian provincial parliament for United Left, wrote that the city still owes €700 million. Blanco is the founder of the website 'Calatrava te la clava', a rhyme that means "Calatrava bleeds you dry" that Calatrava successfully sued. In response, another website 'Calatrava no nos calla' - Calatrava will not silence us - was erected by the left-wing *Esquerra Unida i Alternativa* party which claims "it has viewed copies of bills paid by the People's Party regional government to Calatrava of €100m" (Tremlett, 2012).

The same year as the Athens Games, Calatrava received the commission for the "Ghost Towers," Valencia, as they are sardonically called, a plan to insert four skyscrapers beside the CAC at 450 million € (Blanco, 2016). While the towers were never built Calatrava received 15 million € of tax-payer money for two paper models (Geenwoordspaans, 2013a). What is most astonishing about this project is the government's premise for the project was to sell the four completed Valencian towers in order to offset the monolithic losses incurred by the building of the CAC at a total cost of 1.3 billion €, exceeding the original budget of 300 million by a billion Euros. As Geenwoordspaans writes: "What better way to fix the cash flow of one Calatrava project than by taking on another?" This returns us to Greece, where the same financial logic is in place. In April 2016 contrary to all expectations Greece met its deadline to repay the first IMF bailout loan instalment (Stamouli, 2015b). In order to fund the IMF payment the Greek government signed a deal to sell the Ellinikon airport site that currently houses 2500 refugees to Lambda Development for \$1 billion who will invest 8 billion euro to transform the 1500-acre seafront property into a seaside resort including a giant park (Koutantou, 2016). The Greek and Spanish cases illustrate the speculative and recursive nature of the iconic architecture industry - its equation is to use speculation to cover the losses of a prior failed speculation - through the intervention of iconic architecture. This is the purest example of the financialisation of architecture and public space and liquefaction of public space. Calatrava's immense urban authority and appropriation of public space in Valencia can be seen at the level of the contract he signed with the Valencian government in 2005 where 'in case of sale of the site, the buyer would have to purchase the site including the project for Calatrava's towers. If the buyer did not wish to proceed with the ghost towers, he would have to negotiate with Calatrava about the new use, meaning the buyer

would have to hire Calatrava for a new project, or else pay Calatrava an exorbitant sum to remove the architect from the contract' (Geenwoordspaans, 2013c).

Calatrava has historically denied any responsibility for cost overruns (Geenwoordspaans, 2013b; Kassam, 2015), yet these cost overruns are not accidental – Calatrava knows his role as financier given the scale of money involved and he likely also understands how much more a project will cost in reality, based on his decade-long vitae of producing iconic structures and exceeding their budgets. In fact, until 1995 Calatrava did not have a single cost overrun in any project. From 1995 i.e. just before the inception of the global iconic project Calatrava began to have cost overruns. From 2005, he had no projects without monumental cost overruns (for a list of all Calatrava's cost overruns see (Geenwoordspaans, 2014)). The iconic megaproject provides the iconic architect opportunities for giant fees, unimaginable 25 years ago, and this becomes an opening for corruption and moral hazard. For example, in Valencia, as the project's scope inflated—when Calatrava suggested the Valencia towers should number four and be much taller than the original three towers—the architect's fees also inflated. Esquerra Unida further claimed that contracts were offered to Calatrava via "an unpublicised negotiating system establishing his payments as a percentage of the final cost of each project, which doubled or tripled in respect to the original budgets." Calatrava always stipulates that his contract fee is a percentage of the final project cost rather than the budget, so he serves to benefit spectacularly as the project inflates and costs rise. There is another moral hazard: where the project is never completed, the architect still gets paid, the city does not benefit, and the tax payers bear the cost - as the above cases illustrate. The public protested that 15 million euros for two models was exorbitant and an unreasonable loss for a city already in great financial trouble (a paper architecture *par excellence*).

Financialisation under the iconic architecture industry divests architecture of its objecthood, its reality, and turns failed dreams into money for the industrial agents of the iconic architecture industry. Moreno defines financialisation with a catchphrase: "profiting without producing" that perfectly describes Calatrava's projects in Greece and Valencia. The money Calatrava earned in these failed projects is itself form of financialisation because he provided no contribution to the city. The knowledge that the public will pay for bad architectural financial instruments is now an essential statute of the iconic architecture industry and its "contract" with the city. As economist William I Robinson puts it, "*the toxic mixture of public finance and private transnational finance capital in this age of global capitalism constitutes a new battlefield in which the global rich are waging a war against the global poor and working classes*" (Robinson, 2010: 5)

But the government also shares the blame. While Calatrava has become the "Goldman Sachs" of the iconic architecture industry and, most astonishingly, a strawman for the financial crisis at large – this is clearly a problem that goes beyond Calatrava. The problem put simply is a government's belief that iconic architecture is effective at remediating financial crisis – and further, the delusion by the public and city that are dazzled by the chance for an iconic star to visit their town and insert an iconic masterpiece (a delusion that has clearly worn off in Southern Europe). Yet financial peril at the public's expense is part of the gambler's appeal of iconic architecture to the European city – the government is the gambler in this analogy. Big sums of money evaporating in public space inspire the same awe as the 19,000-ton Olympic roof that floats in the Grecian air.

To state the obvious, Athens did not need an iconic infrastructure project, and Valencia did not need The City of Arts and Sciences or Ghost Towers – *all* these projects were pitched to set in motion the wheels of financialisation – they seek to hijack public space

from the public and liquefy architecture into a future income-producing asset based on the promise of what Karl Marx called “fictitious capital” in Volume III of *Capital* (Marx, 1996).

The Look of Money

While many economists and urban theorists have written about urban financialisation and the transformation of public space into an income yielding asset, and I have discussed both the nature of financial crisis in the city and the agency of the architect within it, what is missing in this debate is the role of the architectural image (by image I include both the digital imagery circulated before construction commences, the photographs of the final building and also the views of the building on the ground – because the real experiential dimension of iconic architecture has become subservient to imagery). As an architectural theorist and historian it is important to reflect on the *Look* of Calatrava’s structures and interrogate the financial meanings captured in his quixotic imagery – which like all iconic architecture has specific historical and theoretical significance, as I have argued previously (Brott, 2012, 2017).

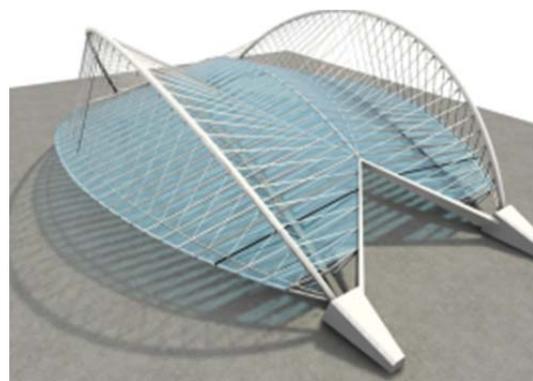
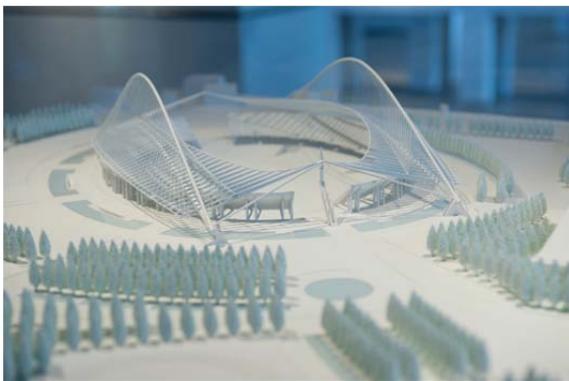


Fig. 2. On the left: Model Calatrava, Olympic Stadium, by Georgia Tech.

Source: <https://www.flickr.com/photos/georgiatech/32272496102/>

Fig. 3. On the right: Digital Rendering 3D-Model Calatrava, The Velodrome, Courtesy Tim Danaher.

Source: <https://www.light-up.co.uk/forum/viewtopic.php?t=86>

In Calatrava’s masterplan, the main Olympic stadium and Velodrome basketball stadium are formal twins: their underlying structural language is formed by two steel arcs and two suspended curved surfaces – connected by tension cables. The Velodrome is an inversion of the main stadium cavity, the latter split and turned upside down and solidified into an airtight double shell, the duplicated steel arcs from the stadium squeezed together at the velodrome base. The stadium envelope itself derives from a slit in a single sheet, stretched to form two new surfaces and a giant cavity that acts as a volume of “water” upon which float two impossibly thin stadium surfaces, like two wet skins, their only structural contact the four vertices of each surface. But this is not a reference to the Mediterranean Sea or nature – despite the architect’s assertions about Europe, classicism, the Byzantine, as inspiration. (Libby, 2004) – but to the absolute opposite, a ghostly architecture that transcends the laws of statics and physical limits – its locus is none other than the virtual space behind the computer screen where nature has been subdued and gravity does not exist. By reducing the structure to four points, the floating Olympic surfaces are reverse-tectonic sheets, not intended to signify or even function as shelter; because the iconic goal

is how to make real parabolic surfaces look exactly like wire frame computer models and suspension cables made to look almost unseeable i.e. digital. The myth of Calatrava as the Spanish artist inspired by the beauty of organic “nature” can be dispelled by viewing the stadium on its side, where the architect-engineer’s techno-mathematical intentions are clear - the stadium has the same ruthless profile as the “Gaussian curve” in Iannis Xenakis’s Philips Pavilion designed for the Brussels expo in 1968. While for Xenakis, the virtual realm did not yet exist in the form of computer software that could visualise his prescient formal imagery, for the iconic architect, digital instrumentalisation and the realm of digital visualisation are today what architecture is.

Calatrava has been situated by critics such as Hal Foster within the 1970s “high tech” tradition, where buildings wear their structure on the outside and aestheticize technology, like the Centre Georges Pompidou, Paris. But the images formed by the Olympic architecture (the photographs, renderings and views of the building) uncannily resemble a digital reincarnation that alludes to something more spectral than mere structural fashion or structure made manifest. This architecture is indeed obsessed with structure but in its recreation of a virtual space and post-human atmosphere of infinite duplication, *what these structures depict is the structure of capital, and the serialisation of money, in the otherly virtual realm of transnational finance*. That is what these buildings signify, and that is what the digital image surveys at the Athens Games. Take the Agora for example.

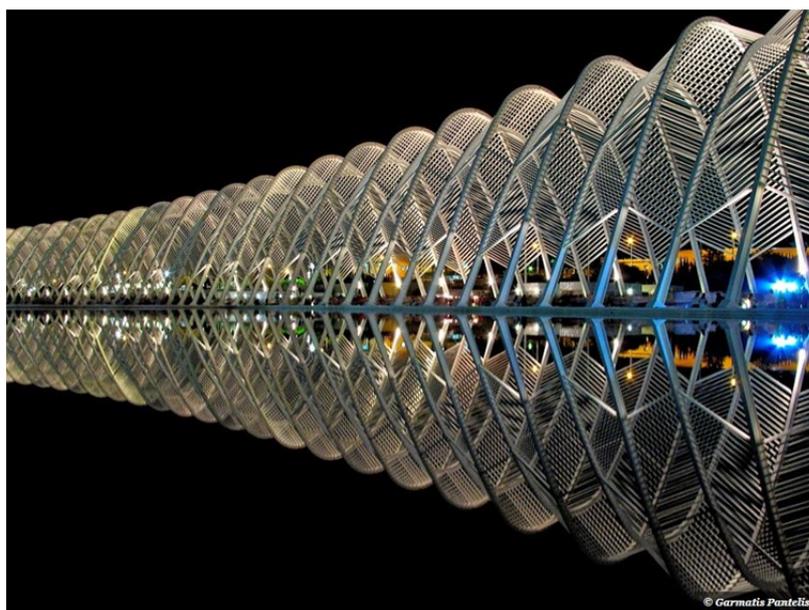


Fig. 4. Calatrava, The Agora curved colonnade, courtesy Garmatis Pantelis.

Source: <http://www.pixoto.com/images-photography/buildings-and-architecture/architectural-detail/athens-olympic-park-calatrava-agora-114338640>

Both fascinating and terrifying, Calatrava’s Agora is a curving promenade of 99 tubular, vaulted steel arches running along the northern edge of the site and enclosing the semi-circular Plaza of the Nations, a sloping, amphitheatre. Ever since the 8th century BC the ancient Greek agora was a financial space where merchants held stalls and shops to sell their goods amid colonnades. (Today we are witnessing the transformation of the historic stadium from a political space into the site for transnational financial deals). But in Calatrava’s Agora-colonnade, the striation of light and shade creates a new stroboscopic

effect—this is the image of the new money world, of ones and zeros extending out to infinity, in the financial hyperspace that no human has any control over or real place in. Indistinguishable from a wire frame digital model, its infinitesimal lines, intersections, and threads mimic the digital minutiae that cannot be grasped by a humanoid, and which reduce human experience to an algorithm. Calatrava's shadow structure is not a fetishisation of mechanical reproduction for the sake of *lines* but a representation of the techno-industrial reproduction of capital itself.

As George Dyson, the son of quantum physicist Freeman elaborates: "*The problem starts, as the current crisis demonstrates, when unregulated replication is applied to money itself*" (Dodson, 2008). Calatrava's Agora, itself a depiction of unregulated replication is a spectacular representation of the financial derivatives that brought the financial world to its knees, the aggressive duplication of derivatives trading at a magnitude only possible with new financial CIT Computer and Information Technology that enabled a globally integrated financial system. CIT appeared at the same time that architecture was revolutionised by computer technology, by complex algorithms and parametric design, where robots replaced the architect's hand, eye, and brain. Since 2008, economists and physicists have described the way in which advanced computer software was responsible for creating the global financial disaster. "In high-frequency trading, huge volumes of stocks and shares - and derivatives of them - are traded automatically by computers rather than by humans in mere fractions of a second raising speculation to a qualitatively higher level and leading to the destabilisation of capitalism as happened in 2007" (Dodson, 2008). The products of the iconic architecture industry and Wall Street are both based on complex computer algorithms where the robot holds the highest agency. The iconic architecture industry was enabled precisely by the historical convergence of the advanced technologies of transnational finance and the advanced technologies of architecture and city making. These are not vague analogies but disruptions of cities and world finance that took place at the same moment in concert. Their mutual goals are the same, capital accumulation. Finally, their logics are the same: computer technology is what facilitated the derealisation of both architecture and capitalism, the latter having being described as "financialisation" – the shift from material labour and production to the production of money within the virtual space of finance for its own sake. The derealisation of capitalism and the contemporary city are effects of the rise of virtual abstraction and the intervention of robots into the city.

Take the following example from Dodson's essay:

"The people who write the algorithms that drive the software are called quantitative analysts, often referred to simply as "quants". They are generally physics and mathematics graduates working in risk management - calculating whether a given deal is a good idea - and derivatives pricing, which entails putting a figure on trades that in effect bet on other trades. It's enormously complex, which is why only the quants could understand it - if, that is, they did. History now suggests they didn't."

This story also has an important analogue in architecture. Like the *Quant*, Calatrava is a human in charge of a high-risk process, really being controlled by machines, where the human becomes not very good at calculating risk. Calatrava almost always goes over budget – meaning he's very poor at risk assessment. It's not just going over budget – these buildings frequently fail structurally and functionally in very expensive ways. The algorithms that led to the subprime mortgage disaster were based on risk assessments that were

later found to be seriously defective. The risk assessment in iconic developments in particular Olympic projects has been spectacularly flawed, as the economist Zimbalist has pointed out (Zimbalist, 2016).



Fig. 5. Calatrava, The Nations Wall.

Source: <https://www.flickr.com/photos/georgiatech/32272496102/> - Creative Commons Licence, Public Domain Mark 1.0

The fourth element in the masterplan, the Nations Wall, that faces the Agora, is an 850-foot-long electric motion-sculpture built out of more self-replicating tubular steel elements which, by a battery of motors, move in a wave like motion along the north side of the Plaza of Nations. The Wall is formally analogous to the New High Speed Train Station in Italy by Calatrava and it also performs as a very large video screen. Calatrava's image is peculiarly past and future, at once reminiscent of Antonio Sant'Elia's drawing of a power station—included in his August 1914 *Futurist Manifesto of Architecture* - and the tubular elements of the Nations Wall also look like laboratory Silos for chemical production in a futuristic industrial landscape. For these reasons, Calatrava's style has been described as “neo-futurist,” a modernist category devised by Hal Foster located in the 1960s and 1970s, which derives from the Italian and Russian avant garde of the artist and poet Filippo Marinetti of 1907 (Marinetti, 1909; Marinetti & Nevinson, 1914) who promoted the synthesis of architecture, fast cars, and fascist politics, but also more recently in the “neo-futurist collective” of artists surrounding Joseph Young and his 2007 Neo-Futurist manifesto (Neo Futurist Collective, 2008; Young, 2008), formalised by Vito Di Bari during the 2015 Milan Exposition (Bari, 2007, Online 2014), almost a century after Marinetti.

These historical avant-garde references today are obvious, but their consequences for the iconic project have been overlooked, because of the illusion that “the iconic” is an ex nihilo category and has no relation with history. To be clear, Calatrava is first and foremost an iconic architect – there are no architects in 1907 or 1970 that realised any structure or development with the financial and formal magnitude of Calatrava's Olympic mega-project. Nonetheless, Calatrava's project illustrates that the iconic project from a strictly internal disciplinary perspective is a transparent continuation of the modernist formal avant garde just as it is a continuation of the modernist project of ideology. I would

like to read from the Neo-Futurist Manifesto of 2007, its goals are “the hope of a positive future where technology, art and humanity will unite to overcome pessimism, despondency and futile utopianism in all its spurious forms” by which it reproduces the essential utopian cliché of the modernist movement both before and after the world wars - *without alteration*. This belief that advanced technologies would provide a better future, and “better quality of life for city dwellers” was the fundamental error of the modern movement, as documented by Jane Jacobs in the historic failure of the urban renewal movement (Jacobs, 1961) then, and today, the *actual* future that was the target of twentieth century modernist ideology – with the most dire urban conditions that are a reality for the majority of the world today. If in the 1960s the critique was about the destruction of the traditional city through urban renewal and the razing of built fabric, today, it is clear, that money and capitalism are irrevocably destroying the contemporary city as economists and theorists are currently debating (Byrne, 2016; Goldman, 2011, 2015; Guironnet & Halbert, 2014; Halbert & Attuyer, 2016; Harvey, 2001; Moreno, 2014; Rutland, 2010; Smyth & Gittelsohn, 2013). Calatrava’s style does not fit into any of the iconic typologies I have described previously (Brott, 2017). His work forms its own typology because it is in a sense the most pure form of iconicity — the fusion of hyper-technology, neo-capitalism and the modernist (utopian) wishes of the twentieth century re-territorialised in the digital image. Calatrava claims to be “continuing the tradition of Spanish modernist engineering including Félix Candela, Antonio Gaudí, and Rafael Guastavino” (alongside putative metaphors of the human body and nature) yet the buildings while beautiful are very poorly engineered, their cladding frequently falls off, the envelope is not water proof, for example, the Olympic roof in Greece leaks. But engineering should be understood as a *symptom* in the iconic architecture industry because *technocracy is the signifier of financialisation and the capitalist instrumentalisation of art and the city*. The violent intervention of large scale debt instruments into the European city does not evoke these benign pleasing European metaphors of the human body that Calatrava always mentions in his genealogical ruminations about his works. It is easy to lean on metonyms that give names to each building like stingray or human spinal column. But the human body is imperfect, asymmetrical, and no part ever duplicates any other part perfectly. Calatrava’s formal types are therefore *robots*, not organic bodies, and they are produced by robots at every level, from transnational financialisation, masterplanning, and conceptualisation, to visualisation, fabrication and completion.

Financialisation and the Iconic Project Arguably, postwar modernism was also defined by a period of debt and sovereign debt default, and the use of iconic developments to remediate financial crisis. The great planner Robert Moses was able to conjure up large sums of money in the 1940s: *Moses frequently ran out of money, and still built a vast amount of iconic infrastructure. It might be tempting to compare the epic failure of Moses’ Shea Stadium with that of the Greek Olympic development (Caro, 1975). But today, the scales of money are simply incomparable with the postwar decades, and the buildings today themselves appear to be less and less real, their primary purpose financial remediation or what David Harvey famously termed “Spatial fix.”*

It could however be argued that Olympic stadia are almost always financial failures (Barney, Wenn, & Martyn, 2002; Zimbalist, 2016) and state funded stadia have always been controversial as they transfer debt to taxpayers (Fischer-Baum, 2012). Yet this merely sharpens the point, for the Olympic Games are a primary locus and laboratory of the iconic architecture industry, and the difference between the two is that the Olympic games concentrates and speeds up the construction process which accentuates the

structural financial problems of the iconic architecture industry. In real terms, iconic architecture at the Olympic games can be considered a form of securitization – it turns a 30-year mortgage into a ‘tradable’ source of urban-economic speculation – a bet, which almost never pays off. The debt that is never repaid becomes a black hole robbing capital from taxpayers that could have been used for the social needs of the city, for public space and for the public itself. The only real capital generated by these projects are large commissions paid to the “top ten,” global investment firms such as Goldman Sachs, Blackstone, et al. who broker the debt arrangements to finance the projects. As we have seen, those banks inevitably return to ‘solve’ the debt problem they created, by helping to finance new speculation e.g. the new Hellinikon resort development in Greece post the Olympics designed to cover the losses incurred in 2004. Iconic construction debt is today a major source of profit for transnational finance capital, and for the architects and developers. As Robinson explains, the profit made in commissions needs to be offloaded after the deal, and so the process continues unabated: “*Once the private banking and financial institutions recovered from the 2008 collapse – in large part thanks to government bailouts – they turned to unloading surplus into sovereign debt markets that they themselves helped to create*” (Robinson, 2010, p. 8). What did Goldman Sachs do in Greece in response to the Olympic Debt crisis? They started an ambitious urban and infrastructural development fund. In the Company Overview of Goldman Sachs Urban Investment Group “Goldman Sachs Urban Investment Group is a fund of Goldman Sachs Group, Merchant Banking Division specializing in investments in corporations operated or owned by ethnic minorities and real estate developers targeting urban communities. It seeks to make early stage investments and makes direct investments in developers and projects” (Bloomberg, 2016). The other banks followed the same path after the global financial crisis: “In 2009, Morgan Stanley, with partners, set up a \$10 billion urban infrastructural fund, Goldman Sachs a \$7.5 billion fund; Citigroup and Blackstone a \$5 billion fund; and DE Shaw a \$1 billion fund” (Goldman, 2011). In other words, the GFC did not lead to a slowing down of development but established the ground for more urban speculation. But the banks are not alone in the equation. As Calatrava demonstrates, the architect is not aloof from the banks, but stands alongside them in the waters of predatory financialisation. The financialisation of iconic architecture into a tradable financial asset and futures trading object has “allowed global architects to appropriate values through new circuits that are outside of space and outside of real or actual value or material production” (Robinson, 2010: 3). The excesses and unproductive forces of iconic architecture are evident in Calatrava’s projects in Greece, Maastricht and Valencia: the megaproject that is either left fallow and unused at the end – or even incomplete, a millennial ruin.

This essay’s contribution is it theorises in singularly architectural terms the financial meanings of Calatrava’s formalism and demonstrates the radical transformation of public space through the medium of iconic architecture and the digital image that becomes both a direct instrument of financialisation and a screen for the financial crises of the city. From a cultural perspective, the iconic architecture industry can be considered the new Hollywood, an elaborate digital advertising medium to catalyse the de-territorialisation of public space and urban financialisation process. Aesthetically, the architecture has become indistinguishable from science fiction: the building speaks a digital language that consumes it, the building must look like a hologram rather than a real building in order to perform its role, and the digital renderings are far more significant to the project than the final building, for the simple reason that that is what the development and city sells itself on,

the technocratic image - which is equivalent to the promises of future capital. Production is now centred on an image and the stock value of that image. As the film industry declines in the US and Europe, the traditional homes of cinema, iconic architecture and mega-developments, their dramatic excesses and crises and failures and tragedies provide the new entertainment for the global masses.

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