Medical Equipment and Frozen Capital – A Global Review

New study reveals where capital is being inefficiently deployed or ‘frozen’ in the global healthcare system

Siemens cross sector Financial Services (SFS), February 2011
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1. Management Summary

- Across the world’s healthcare systems, all of which are experiencing various forms of financial pressure, billions of Euros are tied up in Frozen Capital – inefficiently deployed capital or untapped liquidity potential caused by buying vital equipment, rather than using alternative forms of finance to acquire it.

- This is at a time when healthcare systems are either under severe spending pressures (as in Western Europe and the USA), or where health systems are undergoing rapid development (as in Poland, Turkey and China).

- Utilising other forms of funding, such as asset finance to acquire vital and up-to-date medical technology is helping healthcare systems around the world to achieve the efficiencies that are essential if the future infrastructure development needs of those systems are to be successfully met.

- Asset finance provides financial managers in the healthcare sector with the means to easily and accurately calculate cost-per-procedure, and with this information manage and control equipment costs in the drive to achieve financial sustainability in the healthcare system.

- While just 5% of health spending is devoted to capital equipment, developing healthcare technology plays a disproportionately influential role in enabling diagnostic and clinical efficiences, a key management objective for established and developing healthcare systems. Therefore, it is critical that equipment acquisition is not squeezed, as lack of up-to-date equipment tends to lead to disproportionately high inefficiency of diagnosis and treatment.

- One key area for healthcare equipment investment is diagnostic imaging, across MRI, CT, X-ray and PET technologies. Rapid and accurate diagnosis of various conditions not only enables better health outcomes, but also introduces major efficiencies and cost savings through the avoidance of expensive and invasive exploratory procedures.

- However, the acquisition of up-to-date diagnostic imaging equipment remains financially inefficient. In 2010 in the USA alone, there was €10.4bn ($13.8bn) of frozen capital related to the acquisition of diagnostic imaging equipment. In Europe’s top economies, the figure is €5.2bn ($6.7bn), ranging from €2.0bn ($2.7bn) in Germany, through €916m ($1.22bn) in France, €732m ($977m) in the UK, to €524m ($699m) in Spain.

- Healthcare equipment categories other than diagnostic imaging – such as endoscopy, dialysis, transfusion, anaesthetics, respiration, ophthalmics, and many more – are equally susceptible to financially inefficient acquisition, resulting in large volumes of frozen capital. In fact, these equipment categories represent up to twice as much frozen capital as that incurred by diagnostic imaging equipment.
• Asset finance in Europe’s major economy healthcare systems lags behind the USA, with utilisation rates well below the 30% of equipment investments that is typical of US equipment acquisition across all sectors. Financing techniques such as leasing and renting therefore provide European healthcare systems with huge potential to improve financial efficiency, transparently aligning costs with ‘per procedure’ reimbursements or charges.

• In the UK, squeezed capital budgets, an increase in governmental borrowing costs, and increased competition between acute healthcare providers, are all converging to drive interest in the use of financial efficient methods of acquiring up-to-date equipment that can improve diagnostic and treatment accuracy and throughput, thereby driving down cost-per-procedure. Private healthcare providers recognize the value of alternative methods of financing and consequently employ them much more widely than the public sector.

• In Germany, reform designed to reduce the healthcare systems’ deficit and create more competition amongst healthcare insurers is also encouraging the use of asset finance in spend-to-save strategies.

• France is addressing its own healthcare deficit, but also has the challenge of bringing its diagnostic imaging equipment density up to the European average, something that is enshrined in initiatives such as the National Plan for Cancer. Asset finance is seen as a key enabler of this investment, subject to complex authorisation processes, while also offering a level of transparency that helps financial managers calculate accurate cost-per-procedure.

• Spain has to meet the dual challenges of a population artificially aged by an influx of pensioners from Northern Europe, along with falling tax revenues with which to fund the state-paid health service. All methods of introducing financing efficiency, such as asset finance, leasing and renting, are therefore expected to be employed to meet these challenges in the coming years.

• Poland, although having maintained positive annual GDP, has suffered from the international financial markets crisis, with tax revenues falling, and a consequent constriction on health budgets. Nevertheless, cross-border medical services into Western Europe are helping to drive high quality infrastructure development. In the absence of healthcare budgets growing as fast as demand in an expanding economy, asset financing methods are proving critical to many healthcare organizations in acquiring equipment that can introduce greater procedural productivity and efficiency and thereby reduce cost-per-treatment.

• Turkey is one of the fastest growing healthcare markets in the world, with a major reform and development programme in full swing. Asset finance is gradually becoming more widespread as the sector seeks to provide more efficient and effective diagnostic and clinical procedures in the face of currency depreciation, reliance on imports and the daunting cost of modernization.

• In the United States, the Affordable Care Act of 2010 is exerting considerable pressure to reduce procedural costs as insurers are forced to accept people with pre-existing conditions, and health insurance premiums are more heavily
regulated. In order to help measure, and control, healthcare consumption, leasing arrangements are proving critical to understanding true cost-per-procedure. Technology upgrades in radiology are buoyant, suggesting that this area provides a particularly compelling spend-to-save business case.

- In China’s rapidly developing healthcare system, which is experiencing substantial investment, around €1.8bn ($2.4bn) of frozen capital was associated with diagnostic imaging equipment acquisition in 2010. Whilst China has no squeeze on access to capital, the country’s healthcare infrastructure development targets are massive. Healthcare professionals are determined that the rapidly expanding healthcare system will be sustainable in the long term. Therefore, as the development of a universal access healthcare system gains pace, healthcare suppliers into the Chinese market have been increasingly offering integrated finance to enable a better alignment of costs with health outcomes, and thereby establish competitive position.
2. Introduction

In 2006, Siemens Financial Services began its study series of healthcare financing across the globe. This 2011 study is the latest in that series, following wide publication of the findings of its predecessors. The key theme of the 2011 study is that healthcare organisations across the world are not making the most efficient use of available financing tools to acquire vital medical technology.

Although capital equipment investment represents just 5% of health spending in most countries’ health systems, access to the most up-to-date healthcare technology often has a disproportionately large impact on the ability to deliver better health outcomes and operating efficiencies. For instance, a team of researchers at Eindhoven University of Technology have developed a software tool that converts MRI scans of the brain into three-dimensional coloured images of the nerve structure, allowing clinicians to diagnose with greater speed and accuracy. Many acute healthcare organizations actively publish information on the way their technology capabilities are improving efficiency and effectiveness. In one example, a UK hospital notes how its CT and MRI scanners are “reducing waiting times… can perform several diagnostic functions in one session…. can also give a very early indication of how tumours are responding to treatment… mean that cardiac patients no longer have to be transferred to other hospitals…. play an important role in our pioneering stem cells research trials…” In another example from the US, a hospital describes how its CT scanner is, “…enabling thoracic scanning without breath holds and, in many cases, high-quality images with doses of less than one millisievert (mSv)”, thereby improving the quality of diagnostic images while enhancing patient comfort.

Turning to Germany, the intracardiac catheter laboratory at Goettingen University Hospital has acquired a new imaging technology which allows for simultaneous displays of the heart in two different perspectives during examination. The technology enables 3-D animations of the heart, rotational X-ray as well as a built-in ultrasound which can present the coronary arteries from the inside; it permits physicians to examine coronary vessels as well as perform surgical interventions via catheter with a much higher degree of precision and security.

Healthcare organizations are therefore in agreement that access to up-to-date technology is vital both to improving patient outcomes and to reducing the cost per diagnosis, treatment or procedure.

There can be no question that healthcare systems in the Western world are under severe financial pressure. As will be summarized in the country profile sections that follow, healthcare capital budgets are being squeezed in the UK; in Germany, health insurance premia are rising and remuneration levels may be linked more to outcomes rather than hospital days; reimbursement levels have been reduced in France for some diagnostic procedures and health insurers are being taxed more heavily; Spain has been introducing a series of healthcare spending cuts which are now being implemented by the autonomous regions; and in the USA, President Obama’s

1 MTB Europe, MRI scans of brain turned into three-dimensional maps of nerves, 3 Nov 2010
3 Arnold Palmer Hospital for Children; www.orlandohealth.com/arnoldpalmerhospital/index.aspx
4 Goettinger Tageblatt, 9 Dec 2010
healthcare reforms, which introduce downward pressure on insurance premia and extend insurance cover to people with pre-existing conditions, are bound to drive down reimbursement rates for treatments and therefore demand greater financial efficiency from technology-based procedures.

In Eastern Europe, which has also experienced a major squeeze on standard lines of credit over the last two to three years, a major infrastructural build is going on in the healthcare sector. Access to sufficient capital to achieve this rapid build is the key challenge, and state funding (which fuels capital spending) is not enough for the task.

In China, the state has invested the equivalent of €100bn to achieve better rural access to healthcare by 2013, and aims to have achieved universal access by 2020. While the nation's investment may be substantial, the task in hand is enormous. Other sources of finance – preferably those that do not require healthcare organizations to tie up or 'freeze' large amounts of capital – are required to help hospitals and treatment centers to acquire the equipment that will allow them to upscale healthcare without escalating cost-per-treatment to an unaffordable level. It has been remarked that Chinese financial managers have observed the systemic deficits that have built up in Western healthcare systems, and have determined not to repeat them in their own country's very rapid development.

For many conditions, up-to-date healthcare technology enables faster, better diagnoses and treatments, with throughput rates that help reduce the cost per procedure, either through early intervention, or by avoiding costly and invasive exploratory surgery, or by improving recovery times so that the days spent in hospital are radically reduced.

What then, is the true scale of investment required to introduce the necessary technological and infrastructural development required to create a sustainable, high-efficiency global healthcare environment over the next twenty years?

According to projections from Siemens Financial Services, around €15 trillion will be needed to fund developments in the global public services infrastructure to 2030. Of that, around €2.5 trillion will be needed for healthcare provision. These spending projections put into context how much the public services, and healthcare in particular, are under pressure to identify and use the most efficient and effective methods to finance these developments. Certainly, it is already evident that the development of global healthcare systems cannot be funded purely from the public purse. There are significant economies and efficiencies to be gained by refining the delivery structure and supply chain in European healthcare – moving from an input focused management structure, to one

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5 See, for instance, G. de Jonquieres, European Centre for International Political Economy, China and the global economic crisis, 2009
driven by outputs\textsuperscript{6}. Underpinning this will be a radical reform of financial management and the financial supply chains within healthcare systems.

The importance of improved working capital management in the financial supply chain is that it makes acquisition of the most up-to-date healthcare equipment and technology affordable. Although capital spending on medical devices only occupies in the region of one twentieth of total healthcare budgets\textsuperscript{7}, the influence on efficiency and effectiveness played by the latest healthcare technology is disproportionately positive. For instance, MRI scan times have reduced by up to 75\% with technological advances since the millennium\textsuperscript{8}, not to mention the improvements in diagnostic imaging\textsuperscript{9}. In other words, as this paper has already remarked, the latest technology and equipment often allows more patients to be diagnosed and treated faster and better. This often leads to better clinical outcomes, combined with a more efficient cost-per-treatment. However, such consequential benefits always have to be the subject of rigorous analysis.

This view is born out by statement from the European Council of Finance Ministers (ECOFIN) which has remarked that health systems should be “…effective in achieving the objective of better health, and [be] cost-effective (resources are used appropriately to achieve better health). Health technology assessment (HTA) can contribute to the assessment of different health interventions…. Many Member States (AT, BE, DK, FI, FR, DE, HU, IE, IT, NL, PL, PT, SE, UK) now have a central structure in place that is responsible for conducting or gathering information on HTA, including cost-effectiveness analysis of high cost equipment.\textsuperscript{10}.

The latest technology does, however, come at a price. One study has remarked that “medical devices make up only a small portion of total expenditures in Germany’s social health insurance system. Yet some people believe that new medical technology is a decisive factor in managing increasing healthcare expenditures.”\textsuperscript{11} Nevertheless, as patient/physician choice increases and payment for health service provision is considered at the individual patient level – the pressure to improve treatment efficiency – using the latest technology - mounts. If a healthcare service provider – public or private – is to create a demonstrable centre of excellence that will attract additional patient volumes, then it has to find an affordable method of acquiring up-to-date technology. That this is an urgent issue is highlighted by the substantial budget deficits in the French and German healthcare systems – a significant phenomenon for emerging economies to observe, and one which, through the use of asset finance, they can avoid as their healthcare systems rapidly develop.

\textsuperscript{6} Reform, 1 Jan 2006, The Empire Strikes Back, Professor Nick Bosanquet et al
\textsuperscript{7} Data sources for estimates include: OECD, WHO, National Accounts, Espicom, Forrester, Frost & Sullivan
\textsuperscript{8} Source: Siemens Medical, MAGNETOM literature
\textsuperscript{9} A. G. Sorensen, Advancements in MRI Scanner Technology Lead to Improved Functional Imaging, Electromedica 68
\textsuperscript{11} Institut für Gesundheitsökonomie, Universität Trier, The Lewin Group, Study on the Value of Medical Devices in Germany, 2000
3. Frozen Capital

Critical to the provision of healthcare technology and equipment is better access to flexible Capital – especially given the austerity regimes in force in Europe, improved access to treatment being developed in the USA, and the expansionist targets of the Chinese healthcare system. However, a proportion of capital is currently “frozen” in healthcare systems across the globe, and is not effectively or efficiently deployed. Frozen capital is defined as capital funding which is not appropriate for the purposes to which it is being applied, and is therefore not delivering adequate return on investment. In short, the notion of frozen capital in the Healthcare sector identifies the amount of money that could be freed up and more efficiently applied to capital asset acquisition, if asset-financing techniques such as leasing and rental were more widely employed.

Healthcare organisations are less and less able to have a growing proportion of their annual capital budgets tied up in equipment. In some countries, such as the UK, where firm central pressure to stay within budget was enforced over the last couple of years, selected institutions were only able to meet those requirements by eating into their capital budgets and effectively putting a partial freeze on new technology and equipment acquisition. This is now spreading to other European countries and even the USA. In this kind of situation, not only is capital spending under pressure, it is actually being suppressed, leading to diagnostic and treatment inefficiency through a negative spiral of under-investment. Indeed, lack of appropriate technology may directly impact on standards of patient care.

For rapidly developing healthcare systems, such as those in Turkey and China, the investment requirement is huge, and there is also a concern that the healthcare infrastructure should be sustainable over time. For this to happen, financing methods are required that allow financial managers to easily, accurately and transparently calculate cost-per-procedure, so that they can ensure they are affordable in the long-term.

Within business environments, economists have for many years advocated ownership of appreciating assets (property being the classic example) and the ‘rental’ or leasing of depreciating ones (vehicles and technology). Technology tends to advance in sudden leaps and in some examples can be obsolete within 12-18 months. Healthcare organisations that find themselves owning previous generation equipment (which they have decided to write down over, say, ten years) will find it difficult to attract patients in a health system that fosters internal competition – a key trend in the overall reform of global healthcare. Financing techniques that enable a health institution to upgrade to a superior technology at certain points are therefore

Leasing can often be the most sensible choice... to finance medical equipment as technological advances often outpace the life of the equipment.
gaining in popularity. For these techniques to be effective, and to offer good value, financiers need to understand technology development paths, and also have the channels through which to remarket the older equipment at a reliable and predictable residual value.

In order to illustrate the level of capital “frozen” in this way, the authors of this paper constructed a simple model. Annual spending on leasable healthcare equipment (including diagnostic imaging, dialysis, anaesthetics, endoscopy, and many other disciplines, as well as various categories of medical furniture) was then pro-rated for the leasing penetration for each country.

This inefficiently deployed or ‘frozen’ capital can be replaced with an asset-financing plan that:

- (a) simply charges a fixed equipment lease/rental and maintenance cost against revenue budgets,
- (b) reduces longer-term outlay because the financier retained title and could dispose of the technology on the secondary markets; and,
- (c) introduces the possibility of the healthcare organisation being able to upgrade its technology in broad line with technology developments without having to write down the full capital cost of purchase.

The result is a much more transparent and accurate visibility for healthcare managers of the true cost of the asset over time. By correlating the asset finance costs with patient throughput volumes, a cost-per-use can be calculated, all of which more closely reflects the trend away from global needs funding, and towards payment per treatment. Ultimately, this allows financial managers in the healthcare sector to make much more acute judgments about the affordability and cost-benefits of each equipment acquisition or upgrade.
4. The Research Results

The study analysed not only the overall European picture, but also each national healthcare system amongst the five countries studied, in order to map relative trends in frozen capital.

The summary detailed statistics from the research are:

<table>
<thead>
<tr>
<th>Frozen Capital 2010 (€000)</th>
<th>Germany</th>
<th>UK</th>
<th>France</th>
<th>USA</th>
<th>China</th>
<th>Spain</th>
<th>Russia</th>
<th>Turkey</th>
<th>India</th>
<th>Poland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostic Imaging</td>
<td>2,651,069</td>
<td>732,336</td>
<td>916,026</td>
<td>10,374,352</td>
<td>1,819,228</td>
<td>523,590</td>
<td>1,407,279</td>
<td>289,668</td>
<td>561,440</td>
<td>180,574</td>
</tr>
<tr>
<td>Electrodiagnostic</td>
<td>977,235</td>
<td>360,847</td>
<td>329,304</td>
<td>7,505,102</td>
<td>736,233</td>
<td>79,208</td>
<td>620,321</td>
<td>141,387</td>
<td>245,199</td>
<td>94,258</td>
</tr>
<tr>
<td>X-ray</td>
<td>1,653,773</td>
<td>364,295</td>
<td>586,116</td>
<td>2,781,250</td>
<td>1,802,995</td>
<td>244,342</td>
<td>786,958</td>
<td>147,681</td>
<td>316,267</td>
<td>86,316</td>
</tr>
<tr>
<td>Other Equipment and Medical Furniture</td>
<td>3,146,929</td>
<td>1,601,262</td>
<td>1,418,808</td>
<td>19,555,720</td>
<td>1,278,682</td>
<td>1,035,560</td>
<td>1,282,460</td>
<td>464,517</td>
<td>486,486</td>
<td>358,262</td>
</tr>
<tr>
<td>Other Equipment</td>
<td>2,882,155</td>
<td>1,479,564</td>
<td>1,312,771</td>
<td>17,965,535</td>
<td>1,087,171</td>
<td>975,292</td>
<td>1,182,777</td>
<td>424,035</td>
<td>470,222</td>
<td>325,631</td>
</tr>
<tr>
<td>Medical Furniture</td>
<td>264,774</td>
<td>121,698</td>
<td>105,037</td>
<td>1,500,101</td>
<td>191,511</td>
<td>60,250</td>
<td>99,683</td>
<td>39,582</td>
<td>16,264</td>
<td>32,621</td>
</tr>
<tr>
<td>Total Financeable Healthcare Equipment</td>
<td>5,177,537</td>
<td>2,333,599</td>
<td>2,334,026</td>
<td>29,930,112</td>
<td>3,097,909</td>
<td>1,590,150</td>
<td>2,689,735</td>
<td>753,585</td>
<td>1,947,951</td>
<td>538,836</td>
</tr>
</tbody>
</table>

Frozen Capital per capita (£) | 63.2 | 37.7 | 37.3 | 97.5 | 23.3 | 33.9 | 19.0 | 10.1 | 0.9 | 14.1 |

Note: Categories covered in ‘Other Equipment’ include:-

- Endoscopy
- Dialysis
- Anaesthetics
- Respiratory management
- Tranfusion & IV
- Ophthalmics
- Sterilisation
- Lithotripsy
- Monitoring
- Resuscitation
- Surgery and electro-surgery
5. Country Profiles

5.1. United Kingdom

The UK’s medical devices market is now the third largest in Europe, behind Germany and France (the most comparable market size), with the NHS budget having tripled since 2001\(^\text{12}\) to around 10% of GDP. In the coalition government’s spending review, NHS spending as a whole has been ‘ring-fenced’, yet capital spending is to fall by 17% between 2010/11 and 2014/15 (down to £4.4bn from £5.1bn for the next three years\(^\text{13}\)), with £1 billion reallocated to social care, and over £20 billion of efficiency savings to be achieved\(^\text{14}\). An upturn in gilts issuance has forced up governmental borrowing costs\(^\text{15}\).

The Patient Choice scheme allows patients not only to choose where they are treated for certain procedures, but also to have specified minor operations in a private hospital (3,500/month opt to do so)\(^\text{16}\). Moreover, the Payment by Results policy forces hospitals to compete for patients, introducing an unprecedented level of risk for acute NHS Trusts. Primary Care Trusts (PCTs) and Strategic Health Authorities (SHAs) are being abolished, and some £60-80bn of healthcare spending will move into GP control\(^\text{17}\).

Unlike other countries studied, the UK healthcare system carries no operating deficits. The Patient Choice and Payment by Results policies already mentioned have introduced a systemic impetus to explore techniques and technologies that enable better, faster, more efficient health outcomes. As such, asset-finance is an increasingly well-recognised tool to avoid the need to buy depreciating equipment assets, and instead to acquire them on some form of pay-per-use basis. The NHS actually promotes leasing to Trusts and offers guidance to finance managers on leasing, acknowledging the existence of frozen capital, and spelling out the benefits of leasing\(^\text{18}\).

Asset finance techniques, including leasing, are therefore likely to gain further traction in the UK in order to afford technology upgrades that enable the healthcare system’s hardwired drive towards greater efficiencies.

\(^{12}\) Source – Office of National Statistics, National Accounts
\(^{13}\) Health Service Journal, 28 October 2010
\(^{14}\) BBC, Spending Review Analysis, www.bbc.co.uk/news/uk-politics-11569160
\(^{15}\) CIPFA, CIPFA responds to the Chancellor’s comments on prudential borrowing in the Comprehensive Spending Review, October 2010
\(^{16}\) Health Service Journal, 28 October 2010
\(^{17}\) ibid
\(^{18}\) NHS, NHS Supply Chain launches new leasing contract, 4 June 2010; also, UK Department of Health, NHS PASA (now outsourced to DHL Supply Chain) and DOH IFRS (NHS) implementation group clarification document - http://www.info.doh.gov.uk/doh/finman.nsf/4db79df91d978b6c00256728004f9d6b/730edeb4e90ee62c80257524003b073e/$FILE/IFRS%20and%20leasing%20FAQs.pdf
5.2. Germany

In Germany, healthcare spending represents around 11% of GDP, and is currently carrying a deficit predicted to be around €9bn in 2011 should no reform be implemented. The coalition government has committed itself to reform, but has characterised this as an ongoing maintenance of treatment quality coupled with efficiencies driven by greater competition between insurers and therefore between healthcare institutions\(^\text{19}\). This has inevitably trickled down to pass-through competition in the environment for healthcare equipment, goods and services. The deficit is being cut through a combined initiative to raise the compulsory insurance premia and reduce spending through lower procedure costs\(^\text{20}\). Remuneration for hospitals has been calculated by patient days in hospitals, and was in need of reform towards procedural costs\(^\text{21}\). The result is a move towards diagnostic-related group (DRG) methods for cost calculation.

As insurance premia rise and compensation payments are at least capped, if not reduced, there are also adjustments planned for the whole area of patient co-payments, identified as the most effective method of reducing moral hazard and over-consumption of healthcare services and/or drugs\(^\text{22}\). In the market, the challenges presented by this healthcare funding reform programme are resulting in commercial healthcare operators seeking to buy public hospitals\(^\text{23}\).

Inevitably, reduced compensation rates, along with maintained medical standards, require innovative financing solutions to square the circle in Germany. Private hospitals are already major users of asset finance techniques such as leasing, but this is expected to be accompanied by wider penetration in the whole German hospital sector. As diagnostic and clinical procedure compensation rates are capped, financial savings – through the financially efficient acquisition of more productive medical technologies – will be critical in reducing the cost per procedure.

\(^{19}\) The Lancet, New minister to tackle health reform in Germany, 14 November 2009

\(^{20}\) Washington Times, Germany cuts healthcare spending and raises premiums

\(^{21}\) Allianz, Health reform triggers sharp drop in number of hospitals, July 2005

\(^{22}\) Ziebarth, DIW Berlin, Assessing the effectiveness of healthcare cost containment measures, December 2010

\(^{23}\) Hospital Healthcare Europe, Private hospitals in Germany – on the path to expansion, 2009
5.3. France

France, which (from a clinical point of view) has what is widely regarded as one of the best healthcare systems in the world, is also carrying a substantial estimated healthcare spending deficit of over €12.1bn\(^{24}\) in 2010. French healthcare is also one of the highest consumers of pharmaceuticals per capita in the world. The finance minister has warned that if no reform is put in place, the public deficit will widen by some €2bn in 2011\(^{25}\), and international monitors have also raised similar concerns\(^{26}\).

In the French system, there has been a reluctance to reduce reimbursement rates wholesale. Nevertheless, in a bid to contain the healthcare deficit, 2009 saw prescription charges increase, along with higher charges for people who went straight to a specialist rather than being referred by their physician. The 2011 budget is seeking to introduce €1.2bn of efficiency savings\(^{27}\). Moreover, net spending is being curbed through higher taxes on insurers, measures to reduce over-prescription, greater encouragement to prescribe generic drugs, and reduced reimbursements for X-rays and blood tests\(^{28}\). Blood testing is largely carried out in private laboratories in France where, in tight credit environment, all financial methods that enable monthly payments to be offset against patient fees are beneficial to effective cash flow management.

On the subject of diagnostic imaging, France faces another challenge. It has one of the lowest levels of access to MRI, CT and X-ray technology in Europe\(^{29}\). New healthcare equipment, such as MRI scanners, require government authorisation that evaluates needs, planning and budgeting. This authorisation is mandatory for both private and public hospitals. Authorisation is granted for a period of seven years. At the end of this period, the hospital has to re-submit a full request to the French Ministry of Health in order to extend authorisation to acquire further equipment. Due to this highly restrictive policy, there is a substantial diagnostic imaging shortage in France. Studies\(^{30}\) have suggested that the lack of access to MRI equipment could derail the National Plan for Cancer, which aims to reduce waiting times for scans to under ten days. As a result, the NCP has been extended to deliver another 70+ MRI scanners by 2013.

Nevertheless, the most recent analysis of diagnostic imaging access showed continuing low densities in France, spanning CT at 18.1 per million inhabitants (Germany – 30.9 per million), MRI at 9.1 per million (Germany – 22.6 per million), and X-ray Angiography at 9.0 per million (Germany 18.9 per million)\(^{31}\).

In an atmosphere of reducing reimbursement levels, a drive for efficiency gains, and an evident need to improve access to diagnostic imaging, asset finance has an important role to play in making such advances available and improving procedural efficiencies.


\(^{25}\) Source: Le Parisien

\(^{26}\) France24, IMF warns France to take action on public debt, 30 July 2010

\(^{27}\) BMI, Austerity measures focus on pharmaceuticals, healthcare and medical device spending, October 2010

\(^{28}\) ibid

\(^{29}\) Le Quotidien du Medecin, Survey – Imagerie Santé Avenir, June 2010

\(^{30}\) ibid

\(^{31}\) COCIR, Diagnostic imaging medical devices – the continued need for sustained investment, 2009
through the use of the latest technology, once the complex process of authorisation has been completed.
5.4. Spain

The Spanish healthcare system is largely free (tax-paid) at point of use, like the UK NHS. The system is, however, devolved to the country’s Autonomous Regions, and there is evidence of greater citizen satisfaction with this devolved system compared with centralised equivalents. Although overall healthcare spending in Spain remains below the EU average, the Spanish healthcare system continues to be highly ranked both in Europe and globally. Spain has a proportion of doctors that is above the OECD average, perhaps explaining how competition between doctors has helped to keep costs down until recently. However, long waiting lists for treatment in public hospitals are also a feature of Spanish healthcare, and with many wealthier citizens opting for private medical insurance, contributions do not seem to have fallen significantly as a result of the country’s economic downturn. Nevertheless, health spending as a proportion of GDP has risen dramatically precisely because national income has fallen. To help counteract this, the government has been at pains to establish an internal market in the health system, introducing reforms – even though rejecting an EU call for the extension of co-payments at the end of 2010.

In another government initiative, a healthcare ‘invoice’ (in fact, a statement) is being sent to the public post-treatment so patients are made more aware of the cost of healthcare. Budget pressures are also encouraging the exploration of alternative funding formulae, such as public-private partnerships – namely, a structured long term contract between the public sector organisation and a private company for the provision of a service which was previously provided by the public sector. Generally these are expected to be structured as: a concessional model (Elche Crevillente), where a hospital might be run by a private company for an agreed period; a collaborative model (e.g. examples in Murcia) where the clinical and diagnostic services are managed by the public sector and ancillary services (facilities management, catering, laundry, etc) is managed by a private company.

Demand for private healthcare is expected to grow in Spain, in part because of the wave of pensioners moving in from northern Europe over the past decade. In fact, Spain is also cracking down on the large numbers of expatriates from northern Europe "freeloading" on its state healthcare.

The Spanish medical market ranks fifth in the EU-27 and eighth in the world. Much of the market, especially high-end products, is centred in the main cities, Madrid and Barcelona. Access to diagnostic imaging technology varies widely in Spain depending on the Autonomous Region; however, country-wide, MRI density is above the Western Europe average, whereas CT and X-ray Angiography are a little below that same average.

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Joan Costa Font, London School of Economics, European Institute & Department of Social Policy, Devolution and Health Care Reform, The United Kingdom and Spain in Comparative perspective, 2010

Source: OECD

ibid

La Creca, Salgado rules introduced in healthcare co-payment, despite recommendations of the EU, 7 December 2010

European Voice, Ministers strike cross-border healthcare deal, 8 June 2010

The Daily Telegraph, Spain: Healthcare, 24 March 2010
In short, rising demand from an artificially boosted older population, along with a reduced taxation income and a need to supply the growing private healthcare market, are all putting pressure on the financial efficiency of healthcare equipment investments. As with other countries, asset financing techniques that help align costs with reimbursements are critical to effective financial management. Simple affordability remains an issue with capital budgets squeezed in favour of the demands of operational spending. And the avoidance of equipment obsolescence or under-performance can be avoided by building in upgrade options into a lease.

Finally, e-health is likely to transform the Spanish healthcare system by 2020, focusing on the patient and resulting in competitiveness and specialisation among providers. Major areas to explore within telemedicine between 2011 and 2015 are expected to be; diagnostic imaging; confidential data transmission and Electronic Medical Records (EMR).
5.5. Poland

Poland’s healthcare system is financed through a compulsory state health insurance, administered through the national health fund or Naradowy Fundusz Zdrowia. The country has by no means been unaffected by the international financial markets crisis and availability of credit has been squeezed, although the country’s GDP has remained in positive annual growth throughout. 2010 saw the overall health budget cut by some PLN1.5bn\(^{39}\), even though the reimbursement budget received a PLN590m injection, and the European Investment Bank has been helping with infrastructural developments\(^{40}\).

Capital expenditure in Polish hospitals is funded directly from the state budget, and in the current climate of constricted spending, a very strong ‘spend-to-save’ case has to be made to acquire new equipment, along with an efficient method of financing those acquisitions.

The drive for healthcare efficiency, and indeed efficiency in all public sector activities, is hardwired into the Polish 1997 constitution, which automatically triggers corrective measures and budget balancing if public debt rises above 5.5%\(^{41}\). Yet there is much need for further equipment investment in Poland’s healthcare system. While the country’s densities of diagnostic imaging equipment are above the Eastern European norm, they are still well below those in more mature Western economies. This applies to CT, MRI, X-ray Angiography, and PET technologies (see table).

### Diagnostic Imaging Equipment Density

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Units per million inhabitants</th>
<th>Poland</th>
<th>Eastern Europe</th>
<th>Western Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT</td>
<td>9.8</td>
<td>8.2</td>
<td>23.6</td>
<td></td>
</tr>
<tr>
<td>MRI</td>
<td>3.4</td>
<td>2.6</td>
<td>15.6</td>
<td></td>
</tr>
<tr>
<td>X-ray Angiography</td>
<td>5.1</td>
<td>3.2</td>
<td>12.9</td>
<td></td>
</tr>
<tr>
<td>PET</td>
<td>0.25</td>
<td>0.2</td>
<td>1.1</td>
<td></td>
</tr>
</tbody>
</table>

Source: COCIR, Diagnostic Imaging Devices, 2009

Poland needs to access finance to fund a great deal of equipment upgrade and replacement to maintain growth momentum, and this applies just as much to the healthcare sector as any other. In the absence of healthcare spending growing as fast as burgeoning demand, asset financing methods are proving critical to the affordable acquisition of medical technology that helps introduce more productive and efficient procedures, which in turn help to reduce diagnostic and clinical costs.

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\(^{39}\) Business Monitor, Poland Pharmaceuticals and Healthcare Report Q4 2010  
\(^{40}\) See [www.EIB.org](http://www.EIB.org), for example [http://www.pharmapoland.com/94491/ECB_lends_8364_100m_for_healthcare_investments_in_Kujawsko_Pomorskie.shtml](http://www.pharmapoland.com/94491/ECB_lends_8364_100m_for_healthcare_investments_in_Kujawsko_Pomorskie.shtml)  
5.6. Turkey

The healthcare system in Turkey is evolving under the 2003-13 Health Transformation Programme. The purpose of the programme is to increase the quality and efficiency of the healthcare system and enhance access to healthcare facilities with the introduction of a number of reforms.

In 2006, the Social Security and General Health Insurance Law and Social Security Institutional Laws were passed which effectively merged the various social security (health insurance) organisations. The goal of these laws was to provide universal health coverage, even to people not formally employed.\(^{42}\)

As a result, the medical device market in Turkey remains strong; buoyed by import growth, which the country relies heavily on (around 85% is imports), and the expansion of healthcare facilities coupled with rising health expenditure should, in the eyes of analysts, see the market grow at some 8% across 2010-2015. The market is currently the largest in the region, and is among the top 30 in the world.

Healthcare expenditure has grown steadily, and based on latest estimates, accounts for 8.4% of GDP.\(^{44}\) Healthcare funding comes largely from the public sector, which accounts for over 70% of total expenditure and 90% of hospital beds, mainly from central & local governments and social security programmes. Unlike many other countries in the Middle East, the Turkish private healthcare sector is relatively small and has not expanded as rapidly as it has elsewhere in the region.\(^{45}\)

Turkey is one of the fastest growing healthcare markets in the world, where healthcare reforms, such as centralized health insurance/social security, are leading to better and wider access to healthcare. However, the costs of modernization are considerable, and the healthcare system needs to address a substantial deficit if it is to grow sustainably.\(^{46}\) Referring back to Turkish healthcare’s reliance on imported equipment, it is also worth noting that the country has experienced steadily depreciating exchange rates that have inevitably affected government funding and the real price of imported goods, with the currency depreciating some 22% against the Euro over the last five years.\(^{47}\)

Therefore, the importance of asset financing techniques to support growth in the Turkish healthcare market is evident. Leasing provides access to finance in the form of regular monthly payments, making it easy for financial managers to correlate ongoing equipment costs with diagnostic or treatment throughput, and thereby accurately calculate cost-per-procedure. Once cost-per-procedure is available, this can be correlated with reimbursement levels to ensure that the healthcare system is achieving sustainable growth and not running up a further deficit for future generations to deal with. The role of international financiers and sponsors may well prove important in providing such lease finance. The International Finance Corporation (the private sector

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\(^{42}\) Dagistanli, Aras, Hooker, Spotlight on Turkey: Achieving radical healthcare reforms, 2008

\(^{43}\) Medistat, Turkey, Medical Device Market, 2010

\(^{44}\) Turkish Statistical Office, www.turkstat.gov.tr

\(^{45}\) Medistat, Turkey, Medical Device Market, 2010

\(^{46}\) UKTI, Healthcare, Pharmaceutical & Medical Device Opportunities in Turkey, 4 Oct 2010

\(^{47}\) Source – www.xe.com
arm of the World Bank Group) is of the view that smaller healthcare organizations are under-served with available asset financing options and has been at pains to support the growth of leasing in Turkey.\(^48\).

\(^{48}\) http://www.ifc.org/ifcext/spiwebsite1.nsf/0/C1968986C8CB3A085257718004A062F
5.7. USA

On 23rd March 2010, the Affordable Care Act became law in the USA. The Act regulates healthcare insurance premium levels, reduces exclusion from healthcare coverage for the 32 million Americans who currently have no healthcare insurance, and forces insurers to include people with pre-existing conditions. The Act also aims to lower costs for all by exerting a downward pressure on treatment charges.

This increasingly competitive environment is occurring in an environment where escalating growth in healthcare spending – now around 17% of GDP – is sometimes ascribed in part to available technologies. For several years, spending on new medical technology and prescription drugs has been cited as a leading contributor to the increase in overall health spending. Some analysts state that the availability of more expensive, state-of-the-art technological services and new drugs fuel health care spending not only because the development costs of these products must be recouped by industry but also because they generate consumer demand for more intense, costly services even if they are not necessarily cost-effective. This is now coming under heavy scrutiny, to identify where technology updates can also provably introduce genuine efficiencies in either diagnostics or treatment, or as one government paper remarks, “certain types of preventive medical care may help some patients avoid costly hospitalizations for acute care.”

One such area is the upgrading of diagnostic imaging equipment to provide greater throughput and/or greater accuracy. Technology analysts are of the view that radiology departments have continued to opt to purchase system upgrades, their rationale being that such units offer superior image quality, workflow, and efficiency gains, as well as more sophisticated image processing and analysis. It is expected that, through to 2013, equipment acquisition will chiefly be in the areas of ultrasound and X-ray systems, with uptake of ultrasound systems driven by rising incidence of cardiovascular disease (CVD) among the expanding elderly American population, and improvements in ultrasound technology for use in breast imaging. Digital X-ray will be a significant driver of growth.

In tune with US overall levels of asset finance usage, it is the observation of SFS that leasing is widely used in healthcare – more so than in any other country. Nevertheless, even though some types of equipment may be leased in 30-50% of cases, the potential for greater use of asset finance remains. The attraction of leasing is not simply to provide an additional source of finance in a tight credit market. As US healthcare organisations seek to align their equipment costs with capped or reducing diagnostic or treatment reimbursement levels, the transparency of cost-per-use that leasing enables is likely to drive increased take-up as the decade progresses.

See www.healthcare.gov
See, for instance, Millennium Research, Funding Frugality: US Health Care Facilities Curb Imaging Spending, 2009
ibid
5.8. China

In 2009, China introduced a three year, Y850bn (€100bn) programme to develop the country’s healthcare system, the first stage of a drive towards universal access by 2020. The programme involves the establishment of 2,000 county hospitals and 29,000 township hospitals. As of 2008, health insurance cover is available to the whole population, but many rural poor cannot afford the premiums.

This massive infrastructural development in the Chinese healthcare system is requiring a huge investment in healthcare equipment. Each township hospital is to have X-ray, type B ultrasound and life support machines as standard. At the other end of the spectrum, the challenges of urbanisation and ageing are driving the investment in equipment for more sophisticated procedures in urban areas where wealthier citizens can afford them, including, but not exclusively, China’s five main cities – Beijing, Tianjin, Shanghai, Guangzhou and Chongqing.

Equipment supply is divided between imports and domestic production, both of which are racing to keep up with demand. Foreign companies are allowed to operate in the Chinese market in one of three ways: through a Chinese distributor; in a joint venture with a Chinese company; or as a licensed wholly-owned venture (not yet very popular). Diagnostic imaging makes up the largest market segment (37%) as well as the largest import segment (45%).

One very influential observer has noted the need for procedural cost transparency in China – whether for diagnosis or treatment, insisting that “prices paid by the insurance system also need to reflect actual costs.” Chinese healthcare professionals have observed the way soaring demand in the West has in many cases resulted in considerable deficits, even as a healthcare system grows at a more gradual pace. With China aiming to build a universal access healthcare system for some 1.3 billion people in a matter of just a few years, it is critical that costs are understood and managed so that the emerging system is truly sustainable. In parallel, the pace of technology development in recent years has also been noted. As a result, many healthcare equipment suppliers are offering integrated equipment finance arrangements to help healthcare organisations acquire equipment in a way that allows them to calculate a cost-per-diagnosis or a cost-per-treatment, and thereby be in a position to align real costs with insurance payments.

In a footnote, it is also worth observing the burgeoning healthcare IT market in China. According to one analyst, “information projects in large hospitals are in the integration stage and will steadily develop. In the next few years, small and medium-sized hospitals will noticeably boost information construction while community and regional healthcare platforms based on resident electronic healthcare record technologies and

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56 Espicom, Medistat, China, Outlook, Q3 2010
57 InMedica, Chinese healthcare reform one year later, March 2010
58 Espicom, Medistat, China, Outlook, Q3 2010
59 OECD, Economic Survey of China 2010: Improving the health care system, 2 February 2010
electronic medical record (EMR)-based hospital information platforms will grow at an accelerated speed.\textsuperscript{60}
6. Conclusion

Healthcare systems across the globe are under pressure to understand and control cost-per-procedure. In some cases, this is because past overspending – which has sometimes caused serious deficits – has to be contained in the face of downward real-terms budget pressures. In other cases, such as in China, massive expansion of the healthcare system must be tightly controlled in terms of costs in order to ensure that those systems are sustainable in the long-term.

There is a large body of proof that shows access to the latest medical technology is crucial to improving diagnostic accuracy, treatment throughput, the avoidance of unnecessary interventions, and consequently the cost of healthcare provision. Acquiring such up-to-date equipment through asset finance plans provides healthcare finance professionals with a transparent means to calculate cost-per-procedure and, armed with this knowledge, ensure that those costs are well understood and managed.

Inefficient use of capital, which can freeze that capital and exclude its use elsewhere in the healthcare system, is now widely regarded as anathema by healthcare finance professionals. And asset finance techniques are increasingly recognised and utilised as a powerful means of freeing up frozen capital. Most world healthcare systems, even in the United States where leasing penetration is relatively high, hold huge potential for freeing up currently frozen capital to improve their financial efficiency.