

# ECONOMIC BULLETIN



A quarterly update from Franklin + Andrews

Volume 9.1 | February 2006

## UK economy – recovery in prospect

Growth in the United Kingdom appears to be slowing after 12 years of continuous economic expansion, the longest in the UK's history. GDP growth slowed to 1.8% in 2005 from 3.2% in 2004 due to the weakness in domestic demand and, in particular, slowdown in consumer spending which has dropped off substantially from 3.6% in 2004 to 1.8%. However, the rate of growth is expected to return to trend this year with a forecast growth of 2.4% in 2006 and 2.6% in 2007 as consumer spending is predicted to regain momentum and investment makes a more positive contribution to the economy.

The Monetary Policy Committee (MPC) had to steer a difficult course in 2005 having to make a judgement on the oil price shock at a time of slowing consumer demand. MPC had cut the interest rates by 0.25 percentage point to 4.5% in August 2005, remaining unchanged until January 2006. Many economists expect no change in rates until the second half of 2006 but an earlier cut is likely if consumer spending shows signs of renewed weakness.

According to the Office for National Statistics' (ONS) latest data, the annual rate of inflation, as measured by the Retail Price Index (RPI), fell to 2.2% in December 2005 from 2.4% in the previous month. Similarly, the Consumer Price Index (CPI), the government's measure of inflation, fell to 2.0% in December 2005 from 2.1% in November due to large downward contributions from transport costs. The CPI rate is forecast to increase to 2.3% in 2006 and is expected to stabilise at a level just below the official target from 2007.

After four years of construction output growth above or in line with that of GDP, the industry under performed the economy as a whole in 2005 and recorded its first drop in output for 11 years. During 2005, the construction industry was hit by higher energy and raw material costs, weaker private sector activity and a fall of around 3% in government investment in the built environment. However, the slight downturn in the industry is likely to be short-lived. A modest increase in overall construction output of around 1.6% is

expected during this year due to a recovery in public sector investment. More substantial growth in construction output is forecast for the years 2007 and 2008, at around 3% per annum. The main drivers for this forecast are the expected stable GDP growth over the 2006-2008 period, a strengthening housing market, work on directly and indirectly related Olympics projects and an increase in government spending. The infrastructure sector should also aid growth over the next two years with infrastructure works relating to the Olympics starting to kick in from 2006 onwards. Furthermore, investments under AMP4 programme for the water and sewerage sub-sector should begin to scale up.

Due to very high energy prices, a number of materials suppliers have notified price increases from January 2006 ranging between 10% to 25%. The biggest increase is for asphalt which will go up by approximately 20% to 25% whilst ready mixed concrete, bricks and mortar will cost an average of 12% or more.

The price of copper has also been soaring due to a surge in demand, particularly from China, and as a result this impacts on mechanical and electrical materials such as pipes and cable. Our review of construction material prices will be discussed in more detail in this edition (see page 8).

Despite a slowdown in construction output, tender prices, as measured by Franklin + Andrews' Tender Price Index (TPI), outstripped inflation in 2005 rising by 6% compared with retail inflation of 2.4%. Tender prices are expected to increase significantly faster than RPI during this year due to increases in input costs. Our latest forecast for tender price inflation predicts prices will rise 4.5% in 2006 and 5.3% in 2007.

Overall, there is a positive outlook for the year ahead within the construction industry. The UK economy is expected to be back on trend during this year and this should enable construction growth to strengthen in 2006.

Table 1 Summary of forecast (annual % change)

|                             | 2004<br>(Actual) | 2005<br>(Estimate) | 2006<br>(Forecast) | 2007<br>(Forecast) |
|-----------------------------|------------------|--------------------|--------------------|--------------------|
| Gross domestic product      | 3.2              | 1.8                | 2.4                | 2.6                |
| Consumer price inflation    | 1.3              | 2.1                | 2.3                | 2.0                |
| Total construction output   | 3.1              | -0.6               | 1.6                | 2.9                |
| Tender price index          | 5.3              | 6.0                | 4.5                | 5.3                |
| General building cost index | 6.1              | 6.4                | 4.6                | 3.3                |
| Retail price index**        | 2.2              | 2.4                | 2.4                | 2.4                |

\*\* RPIX (RPI excluding mortgages) forecast – Treasury average of independents November 2005



# A view from the Managing Director

by Andrew Williams

## The world economy – on the whole robust

World economic growth looks set for a steady period of growth overall with the United States and China continuing to be the main drivers of global growth. We predict that global economies will grow at a rate of about 3.5% this year, compared to 3.4% in 2005.

In the US, an expected slowdown in consumer spending and housing will be offset by strengthened capital spending and exports, helped to some extent by a fiscal boost from hurricane-related re-construction. Since 2004, the Federal Reserve (Fed) has been on a course of slow but steady tightening of monetary policy to help tackle increasing inflationary pressures. It is likely the Fed will raise interest rates again in the near term to curb the over-borrowing. The economy as a whole enjoyed a growth of 3.7% in 2005 and we forecast that this is likely to continue into 2007.

Japan's growth spurt over the past two years is fragile. The recent forced cessation of the Tokyo Stock Exchange (TSE), unlikely reflects weakening confidence in Japan's economic recovery but rather a string of embarrassments, and it does highlight technical deficiencies in the world's second-largest stock market. The economy is predicted to slow down with a growth of 1.9% this year, compared with 2.4% in 2005, reflecting a deceleration in investment growth, softer consumer demand and a more challenging external environment.

Economic growth in Asia (excluding Japan) will be sustained this year. It is reported

that the Chinese economy grew 9.9% in 2005, a higher rate than first predicted following the recent announcement of the re-assessment of its GDP size and growth, which suggests that China is fast becoming the fourth largest economy in the world. Meanwhile, other economies of the region including India and South Korea also grew strongly. While exports continue to drive growth in these economies, domestic demand has also been robust. The growth for China is forecast to increase by 8.5-9% in 2006 having considered its recently reported plan of macro-economic control.

In Western Europe, prospects for growth remain weak. Consumer spending is virtually flat and more than half the growth is export led. The European Central Bank (ECB) in December 2005 raised interest rates and we predict will raise them again during 2006. In Germany fiscal policy is about to become even more restrictive. The economy is therefore forecast to grow by only 1.7%, slightly higher than in 2005. In contrast, east-central Europe, especially the ten countries that joined the EU in May 2004, will continue to enjoy strong GDP growth and low inflation towards the end of 2006 and beyond. The transition region as a whole is forecast to grow by 5% in 2006. However, political risks lie ahead as elections throughout the region may alter the business environment.

In Latin America, Brazil's economic growth is expected to continue but also during 2006 reach a level of stability compared with the volatility witnessed before. Interest rates should further decline and public-

sector finances are likely to keep improving. Macro-economic indicators in 2005 were healthy although GDP growth slowed to 2.5% compared to 4.9% a year earlier. Uncertainty in advance of October general elections should not jeopardise its economic stability, with a forecast growth of 3.4% for 2006. The recent change of leadership in many Latin American countries inevitably will bring a change in views and direction. We wait with anticipation to see if the stability continues.

Oil prices have impacted significantly this past year and we anticipate they will continue to play an instrumental role throughout 2006. Following a general calming of demand and restrictions on supply, prices will continue to decline from around \$60 per barrel in December 2005 to nearer \$53 we predict by the end of 2006. With energy demand predicted to stay robust, the risk of another leap in oil prices is still high. The dispute over gas prices between Russia and Ukraine, which cut gas supplies to central and west European countries, has underscored the risks for the EU of becoming too dependent on imports from Russia. It is estimated that by 2020 two-thirds of the EU's total energy requirements will be reliant on imports, and as much as three-quarters of its gas, will come from Russia. With steady supply and a lower internal consumption, Russia is increasing its political strength and bargaining power through its capacity to export to a demanding world.

The recent nuclear row between the US and Iran has put further uncertainties on oil prices. If the

Iranian oil exports of about 2.4 million barrels per day were halted, the rest of the world's spare capacity would not be able to make up the shortfall.

The remarkable resilience of the world economy indicates that growth will be sustained over the next few years despite the recent tsunami in Asia, one of the worst hurricanes in the US, and the highest global energy prices ever.

In the UK we have seen the launch of an impetus towards the 2012 Olympics and this has seen the formation of a new World Games Commission by the RICS to champion the surveying profession's key role in delivering major sporting events around the world. I am pleased to say that Franklin + Andrews is already playing a leading role in helping to deliver the aspirations of this new organisation. Our special bulletin on the impact of the 2012 Games published in October 2005 highlighted our leading capability in this sector.

Included within this edition of our Economic Bulletin we present our viewpoints on the UK construction economy, and include analysis of construction commodities. Our international viewpoint will focus on Italy – an increasingly important marketplace. A review of the modern method of construction-timber frame and an analysis of resource cost movements and their impact on tender rates complete this edition which I hope you will find of interest.

# Commodities analysis

## Aluminium

### Introduction

Aluminium, with its light weight, high strength, resistance to corrosion and durability, various treated finishes and recycle-ability, is the second largest metal used worldwide in transport, construction, packaging and other sectors (see Figure 1 and Figure 2). However, aluminium production, in particular primary production is energy intensive. Although average worldwide energy consumption and subsequent emissions per tonne of production have fallen by 70% over the past hundred years, it still takes about 15 kWh to produce a kilogram of aluminium.

### World production and prices

Supply constraints remain severe across the base metals sector, reflecting high energy costs and raw material shortages, notably alumina. World primary aluminium production in 2005 is estimated to total 29 million tonnes (including China), 2% higher than last year. Meanwhile, global demand remains strong while stocks are low, which puts price pressure on the upside for at least the first half of 2006. The London Metal Exchange's (LME) official settlement prices for aluminium increased by 11% in 2005, and the rises are envisaged to continue in 2006, with a lower rate of 3% (see Figure 3). The production growth is expected to slow down, with a rate of 2% and 1% for 2005 and 2006 respectively.

Figure 1 Aluminium sector consumption

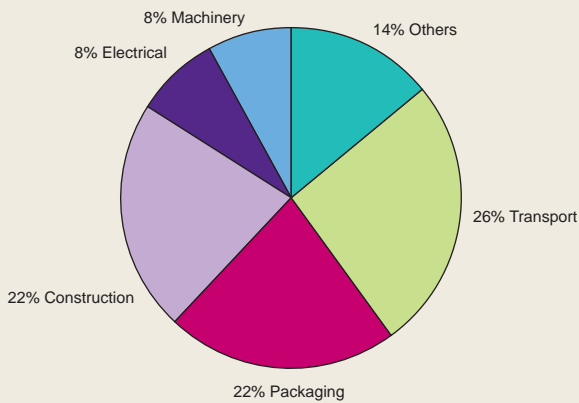
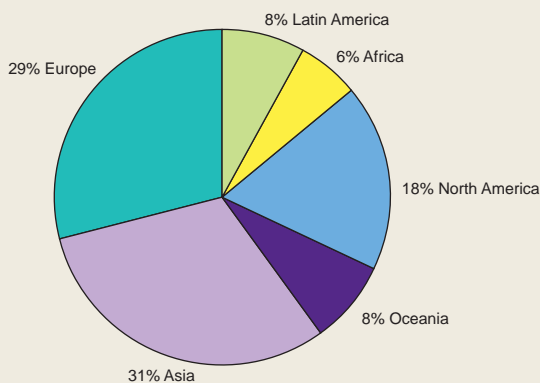


Figure 2 Aluminium regional production



### The UK market

In the UK almost 26% (estimated in 2004) of all aluminium production is used in buildings, highlighting the strength of the UK construction industry and the growing use of aluminium, particularly in the construction of high-rise buildings and other complex structures. Nonetheless, the UK aluminium production has been suffering from high labour costs and increasingly stringent regulation on aluminium production. Sectors such as primary smelters will be phased out eventually in the longer term as wage costs continue to rise and the sector faces increasing pressure of seeking relocation to cheaper labour regions such as east Europe and Asia. Furthermore, environmental regulations and possible taxation make primary production in the UK unsustainable.

The UK production is expected to slowdown, largely attributable to the macro-development of the world aluminium industry. The market for aluminium including primary production, secondary production and trade is forecast to decline in at least the next two years, by 2-3% on average per annum. The producer price index (PPI) for aluminium manufactured in the UK increased by 3.6% in 2005 and is forecast to decline by 3.8% in 2006 in line with the market changes (see Figure 4).

Figure 3 Aluminium production vs prices

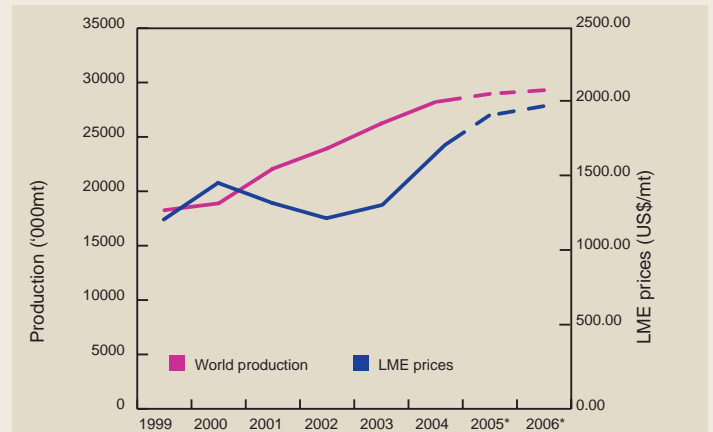
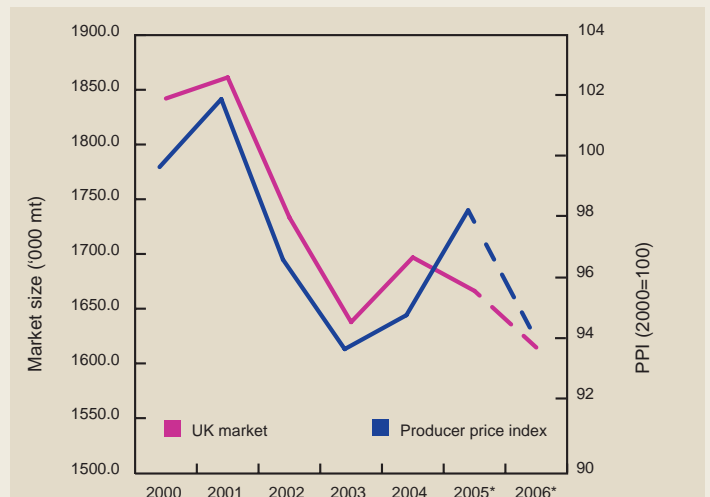


Figure 4 Aluminium market growth vs inflation





## Italy: recovering giant of Europe

### Profile

Strategically situated in southern Europe, Italy can be clearly defined by its boot-shaped peninsula which points south into the Mediterranean Sea. A country heaped in tradition, Italy has been at the forefront of European economic and political unification, joining the Economic and Monetary Union in 1999.

**Land area:** 301,230 km<sup>2</sup>

**Capital:** Rome<sup>8</sup>

**Official language:** Italian

**Population:** 58 million (July 05 estimate)

**Currency:** Euro

£1 = €1.46; US\$1 = €0.83 (January 06 estimate)

### Macro-economy

Since the mid 1950s the Italian economy has emerged from an agricultural-based economy to a dynamic and prosperous industrial economy similar in size to that of Britain or France. However, Italy's economic structure is a tale of two completely different stories. On one hand Italy has witnessed persistent problems including corruption, high unemployment, sluggish economic growth and low incomes in southern Italy, compared to the more affluent and industrialised economic situation in the prosperous north.

In recent years, Italy's GDP growth has been below the euro-area average, and total factor productivity growth has been very weak. A recovery has been under way since early 2004 and is expected to proceed at a moderate pace during the second half of the decade

(reference Table 1 below), with domestic demand continuing to rise faster than GDP. Real growth is projected to remain somewhat slower than the EU average and the gap in consumer price inflation is expected to widen again in 2006. The current-account deficit has increased and export market share losses were substantial until recently. Employment growth has been impressive throughout the slowdown, but the growth of productivity, including that of total factor productivity, has been very weak.

### Construction economics

The Italian construction industry comprises many thousands of small to medium-sized contractors, employing between 10 and 50 employees. Many are family-run operations which tend to only work within a specific location. Despite this make-up the Italian construction market is ranked, according to one published source, as the 8th largest global construction market and one of the five largest across Europe. Since the start of the new millennium construction activity has accounted for approximately 4% of the total GDP and in 2004 construction represented roughly 5.2% of the GDP. The next few years will see the Italian construction sector enter a period of stabilisation with average annual growth of 0.5% forecast. Chart 1 below plots the percentage change in total construction output since 2002.

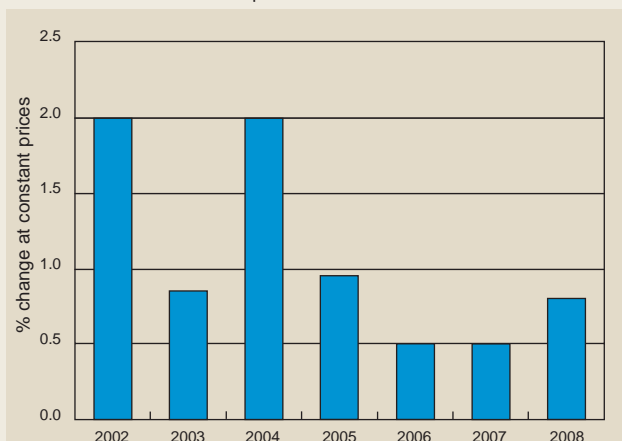
Over the last few years some of the sub-sectors, in particular the new non-residential sector, has experienced a period of limited growth. Non-residential construction accounts for approximately 30% of Italy's total construction output and, after a three-year period of decline

Table 1 Italian economic indicators

|                       | 2002   | 2003   | 2004   | 2005*  | 2006*  | 2007*  | 2008*  | 2009*  | 2010*  |
|-----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Real GDP growth (%)   | 0.4    | 0.4    | 1.0    | 0.2    | 1.1    | 1.2    | 1.5    | 1.8    | 2.0    |
| Inflation (%)         | 2.5    | 2.7    | 2.2    | 2.0    | 2.3    | 1.8    | 1.9    | 1.8    | 1.8    |
| GDP per capita (US\$) | 20,563 | 25,421 | 28,907 | 29,370 | 30,413 | 33,799 | 33,912 | 33,977 | 34,963 |

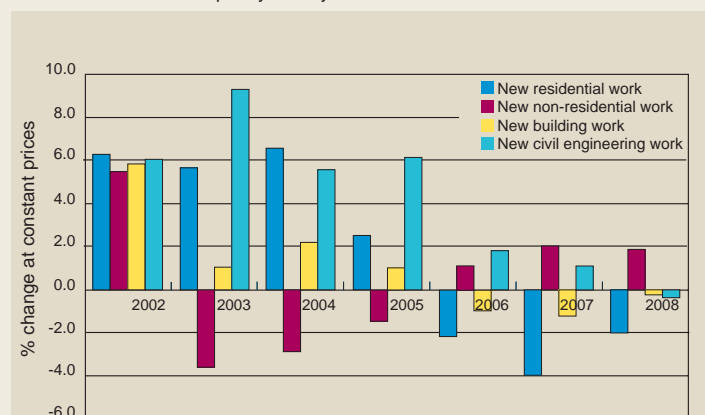
\* Forecast (Source: Economist Intelligence Unit 2005)

Chart 1 Total construction output



(Source: Euroconstruct 2005)

Chart 2 Construction output by activity



(Source: Euroconstruct 2005)

witnessed during 2003-2005, 2006 looks set to be the year which sees the start of a mild recovery with growth forecast to average 2% per annum. Chart 2 plots the annual percentage change of construction output by activity type.

**Office construction**

Construction activity has been limited in Milan and Rome and looks set to remain so during the period 2005-2007 with approximately four thousand square metres of new or refurbished space due in Milan and over one-hundred and forty thousand square metres in Rome. It is forecast that this fresh wave of activity in this sector should help match the projected demand.

**Retail construction**

Construction activity in this sub-sector looks set to increase by over 40% during 2005-2007 as Italy has one of the largest investment programmes in Europe for new retail floorspace. It is forecast to provide approximately four million square metres of new retail floorspace in the form of new retail parks and factory outlets, with particular development sanctioned for the currently under-supplied southern region.

**Industrial construction**

Like so many European countries, Italy is home to a somewhat dated industrial sector and the supply of modern facilities remains tight in areas of high urban development such as Milan and Rome. The sub-sector has witnessed a recovery over the last couple of years and at the end of 2004 nearly five hundred thousand square metres of new warehousing space was under construction and some 50% of which was already pre-let and 15% was purpose built. A real opportunity to develop some five million square metres of new industrial floor space

exists over the next few years, particularly to the south-east of Milan which has become one of Italy's most prominent development areas in recent years.

**Turin 2006 Winter Olympic Games**

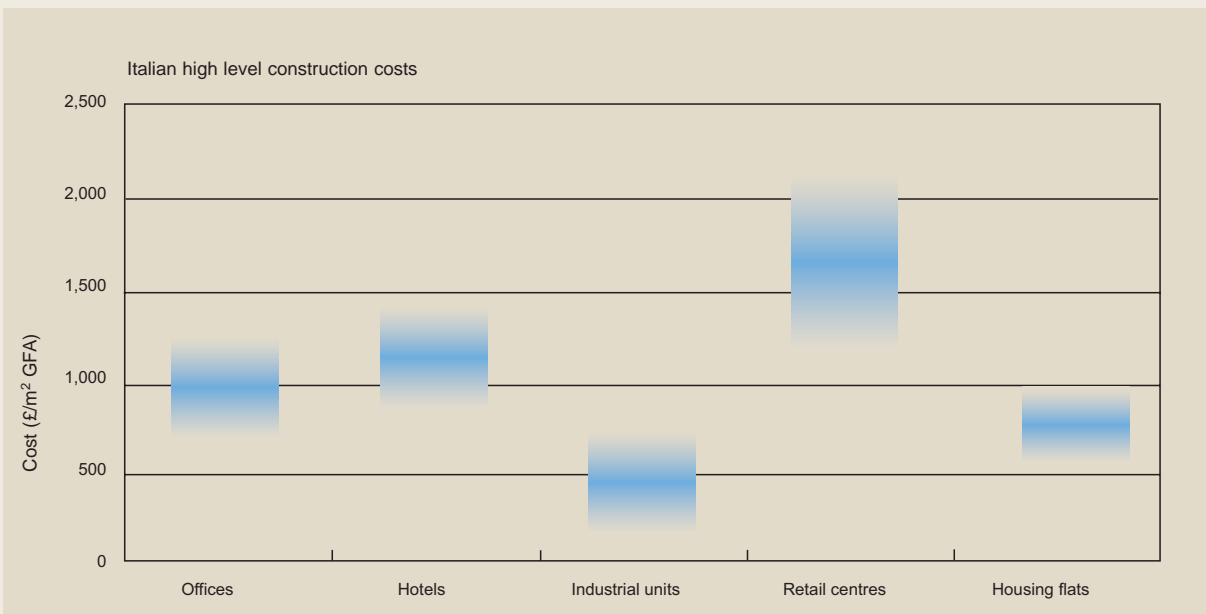
The sport and leisure sector in Northern Italy has been buoyed since it was announced in 1999 that Turin would host the 2006 Olympic Winter Games. With an estimated budget of £1.2 billion, more than sixty-five construction projects, including sports facilities, various infrastructure projects and villages for athletes and media, were commissioned for the eight municipalities in which the competitions are to be held. Of the new developments, some £60 million was spent on a new 8,500-seater Ice Hockey Stadium and approximately £96 million on one of the three Olympic Villages. In February an estimated one million spectators, plus a further twenty thousand people consisting of the athletes, judges, media etc are expected to congregate in the area, boosting the local economy at the same time.

**Typical construction costs**

High-level benchmark costs have been derived from analysis of projects held on the Franklin + Andrews' internal cost database and reflect typical price levels witnessed at first quarter 2006 and represent an average pricing location in Italy.

The following chart is designed to allow checks that a building falls into a likely range, more unusual and extreme examples that fall outside of these indicative bands can always be found, but the purpose of this article is to provide a typical profile of more standard industry project solutions.

Chart 3 Typical construction costs





# Sustainable construction

## Modern method of construction: timber frame vs traditional

### Introduction

Timber materials have been used in the construction industry for centuries. In developed countries over 70% of people live in timber framed housing, which accounts for 90% of low-rise buildings in the USA and Canada and in the UK one in six homes is timber frame built. Although there has been a certain amount of timber substitution by other materials, such as traditional brick and block, plastic windows and roofline products, timber continues to be an important building material. Timber frame is increasingly becoming a popular modern method of construction due to its light weight, modular and engineered components, high quality performance and low maintenance and construction efficiency.

With spiralling energy costs and unpredicted international demand forcing material suppliers to raise the cost of its core supplies, developers are beginning to question the structural design options available to minimise these cost impacts. The cost to produce timber products has not been subjected to the same level of input price rises as other structural components, such as brick and block, concrete or steel, due to its lower consumption of energy and sustainable supply. There are many forms of timber frame, including open panel, advanced and closed panel, volumetric and hybrid systems.

Timber frame, traditionally associated with low-rise construction, can now be built up to eight storeys high and, like all methods of construction, conforms to the requirements of the Building Regulations. It has also been adopted in other sectors including schools, offices and hotels amongst many others.

In the UK timber frame construction is based on factory-made structural elements such as wall panels which carry the loads on the building to the foundations. The outer cladding, which has a wide range of choices including brick, stone or lightweight claddings eg timber boarding, tile hanging or render, provides decoration and weather protection. Factory-made panels ensure that they are accurately manufactured to precise tolerances in a controlled environment away from the unpredictable weather.

### Environmental impact

Timber is an organic, non-toxic and naturally renewable building material and in the UK is sourced from well managed softwood forests. Timber products have lower embedded energy and are recyclable, having less impact on the environment than masonry products. Timber is effectively a carbon-neutral material and has the lowest CO<sub>2</sub> cost of any commercially available building material. About 77% of the energy used in the production of wood products comes from wood residues and recovered wood: in contrast concrete uses five times more energy to produce than timber.

A typical 100 m<sup>2</sup> two-storey detached timber frame home contains 5-6 m<sup>3</sup> more wood than the equivalent traditional brick and block house. In addition, the operational cost of a house can be reduced due to timber's thermal efficiency. Most wood products, from timber frame systems to joinery, can help designers and developers improve their EcoHomes ratings. Waste and end of life wood can also be easily recycled.

### Construction efficiency

Timber frame has a 30% shorter, more predictable construction time than traditional brick and block, indicating an improved investment return, reduced disruption to local communities and more efficient sites. A typical timber frame house can be weather-tight in less than five days and the construction can help to promote greater partnering, better control and project savings through improved supply chain integration. Dry construction not only saves time on site but means that decorations can be carried out soon after completion of the building without risk of cracking or deterioration of finishes.

### Pros and cons

Nevertheless, different project circumstances can favour or work against timber frame construction. Factory manufactured elements of a timber frame also mean that a larger proportion of cost is committed earlier and hence it is difficult to suspend operations if circumstances later change. There are lack of standard designs while the timber frame method gives designers flexibility in both layout and external appearance, with high levels of thermal insulation incorporated within the construction and reducing heating costs and conserving energy. Different project circumstances can favour or work against timber frame construction. Table 1 demonstrates the pros and cons.

### Whole life costs

There are many factors that contribute to the cost of a timber frame. The type of timber, the complexity and number of joints and the size of the frame all contribute to the overall cost. Costs also relate to issues such as access to the site, the provision of power and the availability of an area to put the frames together prior to erecting into position using cranes or winches.

Analyses showed that timber frame can be at least as competitive as traditional techniques in appropriate circumstances, although in many cases timber frame, except open panel, currently tends to be slightly more expensive than brick and block. Nevertheless, the savings of construction time, reduced site work and the potential price reductions of manufactured components as the market matures can lead to whole life cost savings for timber frame, which include earlier rental income or investment return, reduced snagging costs and reduced on-site costs. For example, the costs of volumetric timber frame are incurred mostly off-site and the approach will be more competitive only if the costs of off-site components decrease. Figure 1 illustrates the capital costs comparison and Figure 2 demonstrates the cost savings.

The open-panel timber frame construction is exceptional and cost competitive, currently costing £798 per m<sup>2</sup>, compared to £799 per m<sup>2</sup> for traditional brick and block (Source: NAO). It requires 20% fewer on-site labour days and 30% less time to build than traditional brick and block. Table 2 presents a comparison of elemental costs for housing.

Timber frame, as a type of modern method of construction, is seen as a cost effective approach for the future of the construction industry, in particular, the housing sector, and its further cost reduction depends on where costs occur, which varies for different construction methods.

Table 1 Pros and cons of timber frame

| Pros   | Cons  |
|--|---|
| Suitable for poor soil conditions              | Not allow late design changes                 |
| Restricted working space                       | No standard designs/designs not suited to MMC |
| More storeys can be built                      | Late appointment of the contractor/supplier   |
| Rooms in the panelised roofs                   | No framework agreement with manufacturers     |
| Alternative cladding materials and roof design | Less scope for postponing costs               |

(Source: UKTFA)

Figure 1 Capital costs: Timber frame vs traditional

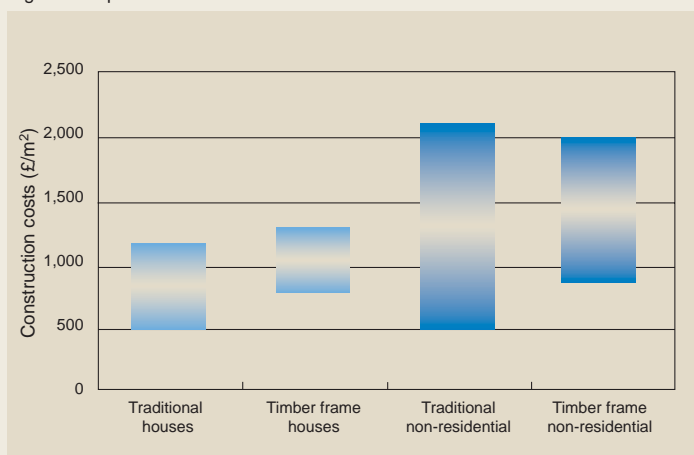
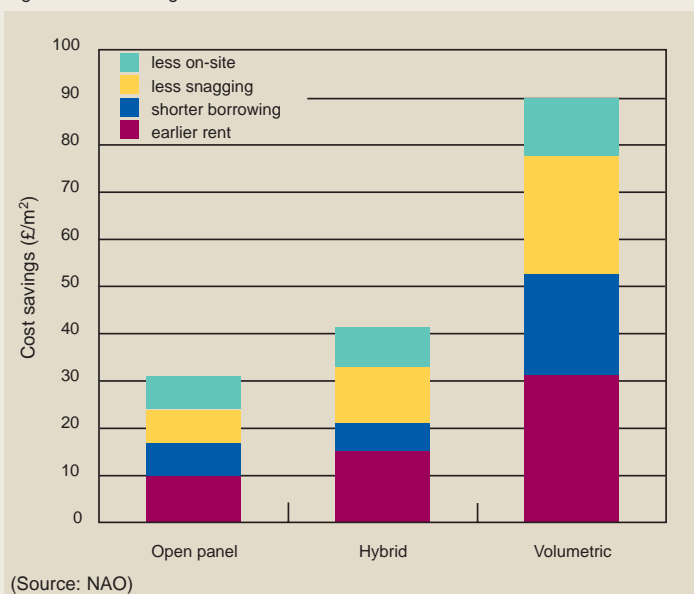


Figure 2 Cost savings of timber frame



(Source: NAO)

Table 2 Average elemental costs for housing (1Q2006)

| Element                            | Timber frame (£/m²) | Traditional (£/m²) |
|------------------------------------|---------------------|--------------------|
| <b>1 Substructure</b>              | <b>97.28</b>        | <b>108.88</b>      |
| 2A Frame                           | 128.88              | –                  |
| 2B Upper floors                    | –                   | 25.05              |
| 2C Roof                            | 112.39              | 117.42             |
| 2D Stairs                          | –                   | 12.51              |
| 2E External walls                  | 78.26               | 92.55              |
| 2F Windows and external doors      | 79.94               | 55.01              |
| 2G Internal walls and partitions   | 5.55                | 27.67              |
| 2H Internal doors                  | 33.45               | 39.44              |
| <b>2 Superstructure</b>            | <b>445.15</b>       | <b>350.86</b>      |
| 3A Wall finishes                   | 71.00               | 51.33              |
| 3B Floor finishes                  | 20.82               | 43.48              |
| 3C Ceiling finishes                | 18.43               | 20.74              |
| <b>3 Internal finishes</b>         | <b>110.25</b>       | <b>110.36</b>      |
| <b>4 Fittings</b>                  | <b>20.68</b>        | <b>26.57</b>       |
| 5A Sanitary appliances             | 18.51               | 30.56              |
| 5B Services equipment              | –                   | –                  |
| 5C Disposal installations          | 9.15                | 12.25              |
| 5D Water installations             | –                   | 16.67              |
| 5E Heat source                     | –                   | –                  |
| 5F Space heating and air treatment | 25.34               | 52.29              |
| 5G Ventilating systems             | –                   | 10.96              |
| 5H Electrical installations        | 31.93               | 38.37              |
| 5I Gas installations               | –                   | –                  |
| 5J Lift and conveyor installations | –                   | –                  |
| 5K Protective installations        | –                   | –                  |
| 5L Communications installations    | 5.11                | –                  |
| 5M Special installations           | –                   | –                  |
| 5N Builder's work in connection    | –                   | 10.73              |
| 5O Builder's profit and attendance | –                   | –                  |
| <b>5 Services</b>                  | <b>116.73</b>       | <b>167.49</b>      |
| <b>Building sub-total:</b>         | <b>790.08</b>       | <b>764.15</b>      |
| <b>6 External works</b>            | <b>378.68</b>       | <b>204.57</b>      |
| <b>7 Preliminaries</b>             | <b>214.11</b>       | <b>87.66</b>       |
| <b>8 Contingencies</b>             | <b>30.49</b>        | <b>34.44</b>       |
| <b>Contract sum:</b>               | <b>1,382.87</b>     | <b>1,022.45</b>    |



# Inflation analysis

## Material prices on the up as energy costs soar

Energy is essential in order for the construction industry to function. Fundamentally fuel and energy are needed in the production of building materials, the operation of plant and equipment, transportation of resources and even the overhead cost of base and site offices, all of which will therefore be financially effected by any fluctuations in market energy rates.

Oil and gas prices have tripled since 2001 due in part to lower production, refining and storage and a high global demand. Gas alone is used to produce at least 40% of our electricity and therefore energy prices in general have also been rising rapidly over this period. Chart 1 plots the price of crude oil against both the Building Maintenance Information (BMI) Energy Cost Index and the general Retail Price Index since 1995. The BMI Energy Cost Index, which is a weighted index of different fuels, demonstrated a relatively consistent pricing trend

up until 2Q2004 where the index identified a price increase of 24% to 4Q2005. However, it can be seen that crude oil prices have increased by a daunting 60% over the same period. The crude oil prices are therefore likely to continue to raise the inflation level of consumer energy costs over the next few months at least.

Since 2001 UK consumers have experienced rapidly increasing energy prices and, as such, it has become the single biggest threat to many industries in the UK. In the construction industry some component manufacturers are now paying almost 50% more for gas than their competitors in the likes of France and Germany. This has made market competition even harder for UK firms as European equivalents are providing justifiable substitutes, even after the cost of import is factored in.

Contractors procuring UK manufactured products are likely to face huge rises in major

material prices due to the soaring cost of energy. Material suppliers have warned of price rises of 10% to 25% on certain materials during 2006. A range of the likely price increases for 2006 has been plotted in Chart 2 for a selection of common building materials.

The resultant effect of the rising energy costs over recent years is an inevitable increase in the cost of building materials but the level of impact will vary according to the intensity of energy usage in the products manufacture. For example, the fuel cost in a heavily energy reliant brick manufacture currently accounts for approximately one-quarter of the cost of bricks. This being the case, the industry can expect to see price increases of approximately 10%. Timber, less reliant on energy usage in its production, should witness a more minimal increase with the cost of transportation as the major area of energy input price rises. Similarly, record high crude oil prices have driven up the

market prices of oil based materials such as bitumen products with hikes of between 20% to 25% likely to be seen in 2006 (For further details please reference our article in QS Week on 12th October 2005).

Contractors in longer-term fixed price contracts, with no fluctuation clause, will inevitably suffer when these price rises take effect. Contractors looking to tender for work will undoubtedly be cautious with these rises in mind: with a stable supply of work to select from this will result in higher tenders and these costs being passed on directly to the developers. With material prices (that normally record increases in-line with Retail Price Inflation) potentially reaching double digit inflation, alongside consistently high labour cost increases, building costs are likely to again increase by abnormal highs during 2006.

Chart 1 Crude oil prices, BMI Energy cost index and Retail price index

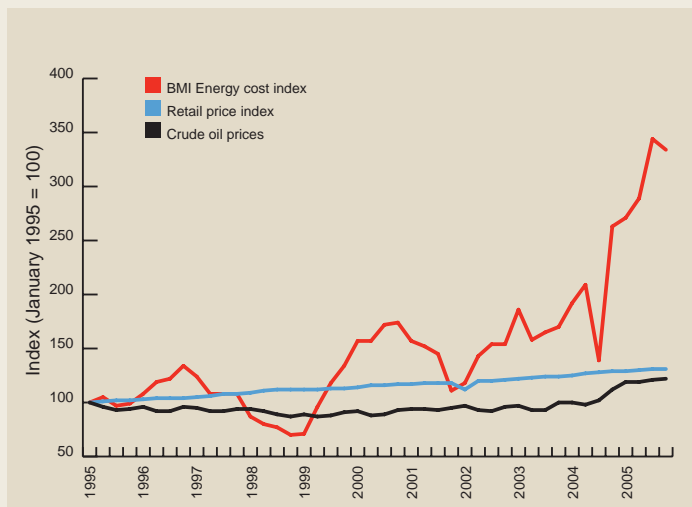


Chart 2 Likely price increases for a selection of building materials



### Franklin + Andrews

Sea Containers House  
20 Upper Ground  
London SE1 9LZ  
United Kingdom  
T: +44 (0) 20 7633 9966  
F: +44 (0) 20 7928 2471

### Contact

Michelle Swales  
Marketing & Communications Director  
E: michelle.swales@franklinandrews.com  
W: www.franklinandrews.com

F+A is a member of the Mott MacDonald Group

### UK offices

|            |           |            |
|------------|-----------|------------|
| Aberdeen   | Edinburgh | Manchester |
| Birmingham | Exeter    | Norwich    |
| Bristol    | Glasgow   | Preston    |
| Cardiff    | Inverness | Sheffield  |
| Chester    | Leeds     | York       |
| Croydon    | London    |            |

### Overseas offices

|           |           |
|-----------|-----------|
| China     | Norway    |
| Hong Kong | Poland    |
| Ireland   | Singapore |
| Malaysia  | Thailand  |
| Nigeria   | Venezuela |

# SPECIAL REPORT

Economic Bulletin



February 2006

## Railway cost driver analysis

**Franklin + Andrews has developed a unique set of indices to reflect both cost and tender price movement of railway construction.**

Analysis and discussion with leading specialists within the sector established a need for the indices. The indices are offered as an alternative to the existing use of the Retail Price Index (RPI) to inflate and deflate project budgets. A regular review and updating of the indices with forecasts for future cost and tender movements will be published on a half yearly basis.

### Cost components

The following were established as being typical of cost significant components of major railway projects.

- Signalling
- Telecommunications
- Electrification
- Permanent way
- Stations and civil engineering

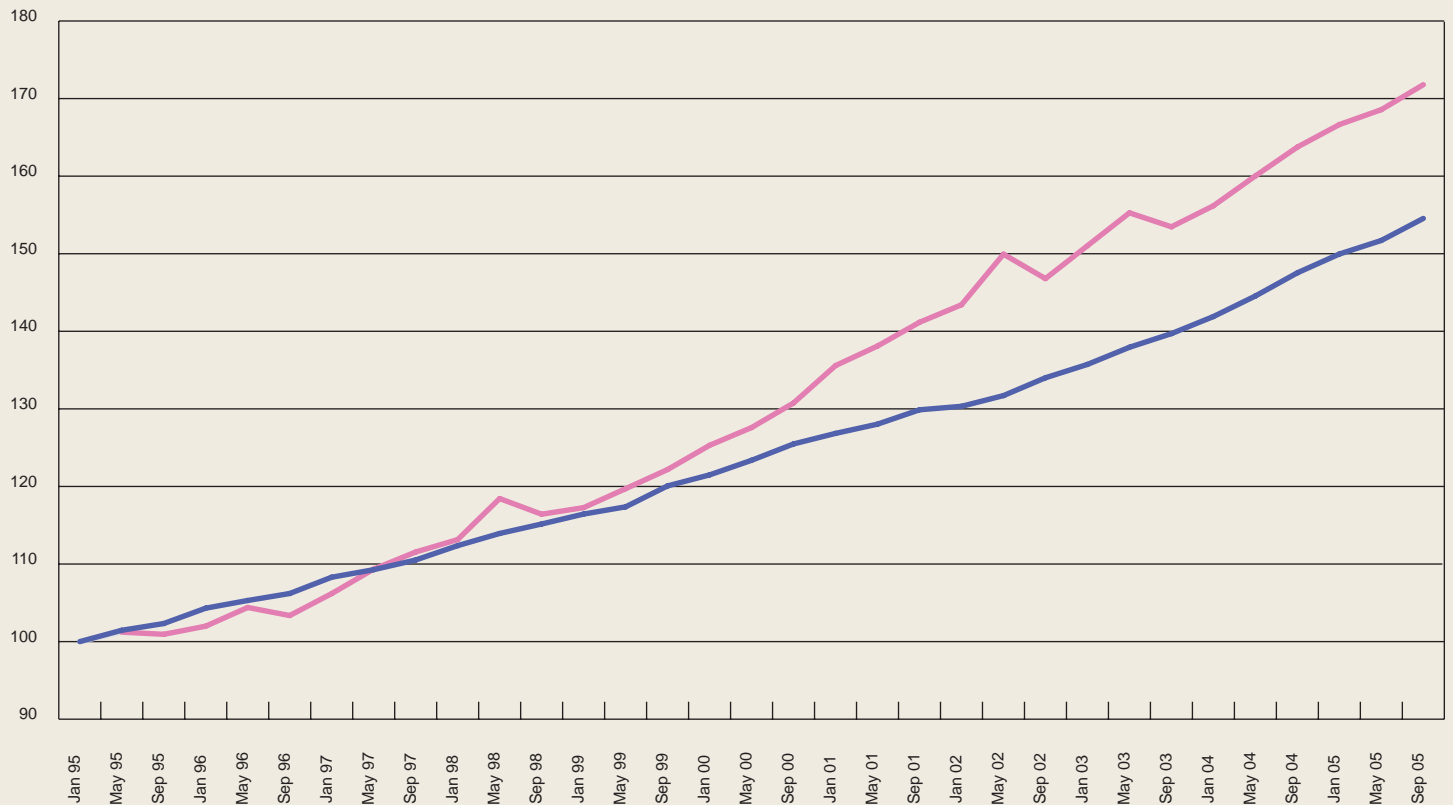
Through use of weighting existing public domain indices for historical movements and linear regression techniques for predictions, cost indices have been created for each of the five components from a base year of 1995. These indices have been weighted to replicate a typical major infrastructure project in order to generate a Railway Project Cost Index.

As a number of the cost components are subject to market forces, a series of tender indices have also been included. These tender indices have been weighted to produce a Railways Project Tender Index.

| Cost Indices                   | Jan-05       | Feb-05       | Mar-05       | Apr-05       | May-05       | Jun-05       | Jul-05       | Aug-05       | Sep-05       | Oct-05       | Nov-05       | Dec-05       | Jan-06       |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Management and design Index    | 147.2        | 147.8        | 148.5        | 150.0        | 150.1        | 150.1        | 151.8        | 151.8        | 152.3        | 152.8        | 153.5        | 154.2        | 154.7        |
| Property                       | 151.0        | 151.2        | 151.3        | 151.4        | 151.5        | 151.8        | 152.0        | 152.1        | 152.3        | 152.5        | 152.6        | 152.8        | 153.1        |
| RPI                            | 129.4        | 129.9        | 130.5        | 131.2        | 131.5        | 131.6        | 131.6        | 131.9        | 132.3        | 132.4        | 132.6        | 132.9        | 133.2        |
| Signalling                     | 150.1        | 150.5        | 150.6        | 150.9        | 151.0        | 151.5        | 151.6        | 151.5        | 151.8        | 154.5        | 154.9        | 155.2        | 155.7        |
| Telecoms                       | 151.8        | 152.7        | 152.7        | 153.2        | 153.7        | 154.5        | 153.7        | 153.4        | 154.2        | 153.3        | 154.1        | 154.5        | 154.8        |
| Electrication                  | 152.1        | 153.0        | 153.0        | 153.4        | 153.8        | 154.6        | 153.9        | 153.6        | 154.3        | 153.5        | 154.3        | 154.7        | 155.0        |
| Permanent way                  | 155.2        | 155.9        | 157.3        | 157.7        | 157.3        | 158.6        | 165.7        | 166.1        | 166.8        | 167.1        | 167.5        | 166.9        | 167.6        |
| Stations and civils            | 150.0        | 150.5        | 151.5        | 152.3        | 152.2        | 153.4        | 158.5        | 158.5        | 159.1        | 159.5        | 158.9        | 159.3        | 159.9        |
| <b>F+A Railways Cost Index</b> | <b>150.0</b> | <b>150.5</b> | <b>151.0</b> | <b>151.6</b> | <b>151.7</b> | <b>152.3</b> | <b>154.0</b> | <b>154.1</b> | <b>154.6</b> | <b>155.1</b> | <b>155.5</b> | <b>155.7</b> | <b>156.2</b> |

| Tender Indices                   | Jan-05       | Feb-05       | Mar-05       | Apr-05       | May-05       | Jun-05       | Jul-05       | Aug-05       | Sept-05      | Oct-05       | Nov-05       | Dec-05       | Jan-06       |
|----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Signalling                       | 169.1        | 169.6        | 169.7        | 170.2        | 170.1        | 170.6        | 170.6        | 170.5        | 170.7        | 173.7        | 174.0        | 174.2        | 174.9        |
| Telecoms                         | 171.1        | 172.1        | 172.1        | 172.6        | 173.1        | 174.0        | 173.0        | 172.7        | 173.4        | 172.3        | 173.1        | 173.5        | 174.0        |
| Electricification                | 171.4        | 172.3        | 172.3        | 172.8        | 173.3        | 174.1        | 173.3        | 172.9        | 173.6        | 172.5        | 173.3        | 173.7        | 174.2        |
| Permanent way                    | 174.9        | 175.6        | 177.2        | 177.7        | 177.2        | 178.6        | 186.5        | 186.9        | 187.6        | 187.8        | 188.1        | 187.4        | 188.2        |
| Stations and civils              | 169.0        | 169.5        | 170.7        | 171.6        | 171.5        | 172.7        | 178.5        | 178.4        | 178.9        | 179.2        | 178.4        | 178.8        | 179.6        |
| <b>F+A Railways Tender Index</b> | <b>166.6</b> | <b>167.3</b> | <b>167.8</b> | <b>168.5</b> | <b>168.6</b> | <b>169.3</b> | <b>171.4</b> | <b>171.3</b> | <b>171.8</b> | <b>172.3</b> | <b>172.6</b> | <b>172.8</b> | <b>173.4</b> |

# Railway cost driver analysis



| Cost indices annual inflation                         |              |              |              |              |              |              |
|---|--------------|--------------|--------------|--------------|--------------|--------------|
|   | 2005         | 2006         | 2007         | 2008         | 2009         | 2010         |
| Signalling  | 3.82%        | 4.58%        | 3.99%        | 4.09%        | 4.72%        | 5.27%        |
| Telecoms  | 2.01%        | 2.76%        | 4.30%        | 4.72%        | 4.54%        | 5.28%        |
| Electrification                                       | 1.99%        | 2.64%        | 3.69%        | 3.73%        | 4.90%        | 5.28%        |
| Permanent way   | 7.95%        | 5.73%        | 4.06%        | 3.56%        | 5.01%        | 5.30%        |
| Stations and civils                                   | 6.69%        | 5.14%        | 3.60%        | 3.89%        | 4.43%        | 4.82%        |
| <b>Typical railways project annual cost inflation</b> | <b>4.12%</b> | <b>3.92%</b> | <b>3.64%</b> | <b>3.80%</b> | <b>4.38%</b> | <b>4.86%</b> |

| Tender indices annual inflation                         |              |              |              |              |              |              |
|---|--------------|--------------|--------------|--------------|--------------|--------------|
|   | 2005         | 2006         | 2007         | 2008         | 2009         | 2010         |
| Signalling  | 3.50%        | 5.19%        | 5.10%        | 7.90%        | 6.84%        | 6.70%        |
| Telecoms  | 1.72%        | 3.88%        | 5.90%        | 8.92%        | 6.93%        | 6.71%        |
| Electrification   | 1.71%        | 4.12%        | 4.82%        | 7.91%        | 7.11%        | 6.71%        |
| Permanent way   | 7.59%        | 5.46%        | 4.68%        | 8.85%        | 7.31%        | 6.73%        |
| Stations and civils                                     | 6.35%        | 5.36%        | 4.54%        | 7.88%        | 6.36%        | 5.87%        |
| <b>Typical railways project annual tender inflation</b> | <b>4.06%</b> | <b>4.60%</b> | <b>4.69%</b> | <b>7.56%</b> | <b>6.45%</b> | <b>6.22%</b> |

|  |   |  |   |
|--|---|--|---|
| <b>Franklin + Andrews</b><br>Sea Containers House<br>20 Upper Ground<br>London SE1 9LZ<br>United Kingdom<br>T: +44 (0) 20 7633 9966<br>F: +44 (0) 20 7928 2471 | <b>Contact</b><br>Michelle Swales<br>Marketing & Communications Director<br>E: michelle.swales@franklinandrews.com<br>W: www.franklinandrews.com<br>F+A is a member of the Mott MacDonald Group | <b>UK offices</b><br>Aberdeen<br>Birmingham<br>Bristol<br>Cardiff<br>Chester<br>Croydon<br>Edinburgh<br>Exeter<br>Glasgow<br>Inverness<br>Leeds<br>London<br>Manchester<br>Norwich<br>Preston<br>Sheffield<br>York | <b>Overseas offices</b><br>China<br>Hong Kong<br>Ireland<br>Malaysia<br>Nigeria<br>Norway<br>Poland<br>Singapore<br>Thailand<br>Venezuela |
|--|---|--|---|