Australian Government
Australian Centre for
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ENHANCING KEY ELEMENTS OF THE VALUE CHAIN FOR PLANTATION GROWN WOOD IN LAO PDR

VALTIP2

Contents

Foreword

The present report is one of the research activities within ACIAR international cooperative project FST/2010/012 *"Enhancing key elements of the value chains for plantation-grown wood in Lao PDR"* which objective is to enhance the competitiveness and capacity of the Lao PDR wood processing industry through the development of an industry-led value-added timber market strategy.

The report aims to provide information required for the development of an industry-led value-added timber market strategy to enhance the competitiveness and capacity of wood processing industries in Lao PDR. This document represents a condensed compilation of numerous recent market studies and reports realised by international and governmental agencies[1]. A comprehensive analysis of international markets was undertaken to provide an overview of markets and market trends for selected wood products such as furniture, flooring and veneered products. Some segments included here, even if not directly related, have been included to implement the document and provide valuable information to brainstorm the findings and gather views on strategic directions to develop a market strategy.

At present, medium and large wood processing industries in Lao PDR usually supply their products to businesses and organizational markets[2]. Industries supplying products to organizational markets are usually owned by domestic investors, who have strong connections with government agencies, which assist in supplying their products to the government development projects such school and building constructions. Industries which supply their products to export markets usually have connections with foreign investors, mainly in the form of joint investment in production businesses. Under these circumstances, foreign investors have a sound knowledge in markets and marketing strategies when Laotian investors only have little. On the other hand, small industries tend to supply their products essentially to the domestic market. Their knowledge on market research and marketing are developed from their own experiences which makes it hard for them to access other markets. Although the Lao Furniture Industry Association has provided short trainings in marketing over the past few years, training session are usually short and insufficient. Currently, three institutions in Laos provide market and marketing research training for wood and wood processed products industries. These are: The Faculty of Forestry at National University of Laos (NUoL), the Economic Research Institute for Trade (ERIT), and the Lao Chamber of Commerce. Additional effort is needed to further develop market research and marketing training for wood and wood processing industries since reports on market trends and overviews are usually not accessible to Lao PDR wood industries.

[1] The content of the report does not represent the opinions and values of the authors or their respective organisation.
[2] Information provided by Dr Kaisone Phengsopha, National University of Laos, Lao PDR.

Executive summary

Based on the literature, the report addresses important elements to keep in mind when developing a strategy for the Lao PDR wood and wood products industry.

Tropical hardwoods retain a significant presence in high-value niche markets such as windows, joinery, marine works and decorative veneers. The development of plantations combined with technologies that have evolved for temperate products offer opportunities to improve the performance of fast-growing species. Tropical end use products are regarded as high-value luxury products but also perceived to be associated with illegal logging and tropical deforestation. The global economic crisis, and continuing euro crisis, is reinforcing existing market trends.

Dominant markets for secondary processed wood products are the developed economies - notably the United States, EU countries and Japan – which were severely affected by the global economic crisis. The global demand for wooden furniture and joinery products followed the trend in housing starts and consumption in those countries and global imports dropped in 2009, ending a period of significant growth in global trade over the previous decade.

EU countries have traditionally been major destinations for tropical wood products, with UK, France, Netherlands, Italy, Germany, Portugal, Spain and Belgium importing substantial volumes of tropical sawnwood, veneers and plywood that are mostly remanufactured into high-value furniture, joinery and flooring products consumed in EU markets. A growing trend which had been evident before the crisis has been the decline in imports of tropical primary products and a rise in imports of finished products, primarily from Asian suppliers.

Over the past few years, the United States, Germany, France, UK and Japan were the biggest importing countries of wooden furniture. The United States was the largest importing country accounting for almost 25% in value in 2011. Europe imports of wooden furniture and parts accounted for more than 40% of the world import value over the same period. Recently, Japan overcame the United States becoming the world's major importer of joinery and carpentry wood products. The aggregate imports of joineries in Europe accounted for almost 50% of the world imports in 2011 with Germany being the European major importing country. The United States was the major mouldings importing country while Canada maintained its position as the world's second largest importer, followed by Japan.

Sustainable consumption and green consumerism are dominant market drivers in EU markets since well before the crisis, with emphasis on ensuring supplies of legal and/or sustainable wood products. Environmental concerns have benefited FSC and PEFC certified hardwoods, the majority of which are sourced from Europe. Significant structural changes in the European wood importing industry, which had begun several years before the crisis, had intensified in response to the recession, including the need for flexible, just-in-time delivery of finished products to offset uncertainty in consumption and prices. Reports indicate that the recession had further reinforced the need for finished products to be available for fast turnaround and in small, flexible container loads to offset uncertainty in consumption and prices. Retailers, wholesalers and importers are all increasingly working on a just-in-time basis and maintaining low inventories. An increasing requirement for large volume, consistent supplies has resulted in shifts in demand for a limited range of temperate species, particularly oak, with stained oak increasingly replacing tropical species where darker colours are highly favoured. On-going work to modify the characteristics of temperate hardwoods and softwoods to improve their technical and aesthetic performance, mimicking the characteristics of tropical hardwoods, has been a significant threat to the tropical hardwood sector in EU markets.

Tropical wood flooring remains very popular in southern European countries such as Spain, Italy and Greece. There are widespread expectations that recent regulatory measures to combat illegal wood products announced by the European Commission will significantly increase demand for certified products throughout the European veneer sector. The industry can build on the fact that the desire for the look of wood is strong and indications that consumers and designers at the high end of the market still seek the naturalness, sustainability, warmth and performance of real wood. There is continuing willingness to show off the aesthetic qualities of tropical hardwoods in the most influential section of the European furniture industry. Nonetheless, there is a critical need for active engagement with the European design community to maintain and rebuild market share.

Global demographic factors and impact on tropical hardwoods

Global demographic factors have significant potential to affect the relative competitiveness of tropical hardwoods and other materials. A very large absolute increase in the size of the global population is projected over the coming decades implying significant underlying growth in global demand for all commodities, including wood of all types. Particularly strong growth rates are projected for Africa, where population is expected to double in size between 2008 and 2050, and in India, which is widely expected to overtake China as the most populous nation in the world by around 2030. Age-class structure, which differs radically between the LDCs and the MDCs, is a demographic factor that has a strong bearing on the types of products favoured by the consuming public. While the former are becoming increasingly characterized by large numbers of young people, exactly the opposite is true of the MDCs. Another significant factor is increasing urbanization. The world population is now evenly divided between urban and rural areas but by 2050, urban residents are likely to make up 70% of the world’s population, suggesting an increase in demand for construction materials suitable for high-density living. At the same time, urbanization is contributing to the emergence of a trend in architectural and interior design to introduce wood materials in order to soften, humanize and naturalize urban environments.

Carbon footprint as a marketing opportunity

Rising interest in the carbon footprint of products has the potential to be a strong marketing opportunity for tropical hardwood products, given research to acquire appropriate data. The opportunity is likely to be particularly strong for products based on local wood raw materials that are finished or semi-finished in tropical countries prior to export. It is, however, less likely to favour tropical hardwood products such as garden furniture if these are manufactured at a considerable distance both from the raw material source and the customer – as is often the case in Southeast Asia.

Design trends and future competitiveness

Product and building design trends are critically important to the future competitiveness of the tropical hardwood industry and offer both opportunities and threats. Very strong interest in sustainability in the design profession, combined with designers' lack of knowledge of tropical forest issues, often results in strong prejudices against the use of tropical hardwoods.

Growing interest in the mixing of materials is undermining the competitiveness of tropical hardwoods in sectors where they have been dominant in the past, such as garden furniture. On the other hand, moves towards natural, timeless, authentic, minimalist and individual products in the interiors sector could be turned to the benefit of tropical hardwoods with appropriate marketing. Exploiting these opportunities will be very challenging for the tropical hardwood industry. Global design trends tend to be led by large corporations and high-profile designers in industrialized nations who are more familiar with temperate wood products. In the absence of a strong cadre of influential designers in tropical countries, there is a threat of progressive loss of market share.

The best opportunities for market growth may be in domestic and regional markets. Developing countries in Africa, the Middle East and Latin America experienced fast growth over the past few years as industrialization and rising incomes in many economies served to boost demand. The larger companies are more likely to demand environmental certification and to impose other technical requirements on their suppliers. This in turn is also encouraging a general shift to low risk products from an environmental point of view with importers actively avoiding tropical hardwood to improve their image.

Plantation teak remains important at medium price points in the market. Prices for plantation teak are highly variable depending on quality. High and volatile pricing in this section of the market has made tropical hardwoods extremely vulnerable to substitution, both by much cheaper FSC-certified plantation woods and by non-wood products.

Key themes likely to impact the future consumption of tropical wood products

Narrative Designers are increasingly interested in the narrative behind particular materials - for example, what is its historical context and what cultural, social and moral messages does it send?

Health There is emerging concern for how products and buildings affect physical and psychological well-being. These trends are both influenced by and feed wider public concerns about personal health.

Mixed Materials The huge range of materials now available and a more eclectic approach to design - mixing Eastern and Western or old and new, the use of traditional shapes in modern materials, and combining unique pieces with mass-produced items - is encouraging a much greater mixing of materials.

Authentic & Individual Parts of the design community are reacting against anonymous globalization (e.g. look-a-like airports, shops and hotels). This reflects a perception that consumers no longer want simply to buy they want to experience the real deal and are looking for regional or local individuality and the knowledge of who has made a certain product.

Overall, this suggests that rather than shipping generic products around the globe, tropical countries may be able to improve their competitiveness by creating furniture products that incorporate elements of their cultural identity and contribute to a feeling of authenticity and individuality.

International Tropical Timber Organization (ITTO) recommendations for producer countries and for tropical hardwood industries

- Consideration should be given to opportunities for linkages with programs promoting higher-quality and sustainable construction in domestic markets.
- Improving the efficiency of wood-processing operations and the level of knowledge of wood handling.
- Encouraging a more positive environment for innovation and for research and development.
- Invest in development of new products and geographical market opportunities, including domestic and regional markets.
- Continuously make gains in productivity to reduce costs and maintain competitiveness, and to identify and exploit sources of competitive advantage.
- Focus on value-added and innovative products which are less affected by global economic downturns.
- Developing the opportunities that exist for tropical hardwoods in higher-value niche markets instead of seeking to compete in large-volume, low-value commodity markets, where softwoods and other cheaper commodities dominate, is unlikely to be a sustainable long-term strategy.
- A commitment with emerging quality, environmental and forest-certification/legality standards. Long-term competitiveness, particularly in higher-value niche markets, is likely to lie in ensuring tight conformance with these standards.
- Improving the regularity and consistency of wood supply through improved logistics, an increased dependence on resources managed for long-term sustained yield, including both plantations and managed natural forests, training in wood-handling, and other efforts to improve the efficiency of wood-processing operations.

Introduction

International tropical timber markets are continually undergoing dynamic structural changes which threaten the competitive position of tropical timber products compared with other wood and non-wood products. Changes in factors such as price, product availability, technology, shipping and freight costs, manufacturing costs and consumer taste have been impacting on the relative competitiveness of tropical wood products. It has long recognised that tropical producer members need to regularly assess the competitive position of their products in export markets. This intelligence is vital to maintaining the production and trade of tropical timber products.

Oliver and Donkor (2010)

According to Oliver and Donkor (2010), there are opportunities for the tropical timber products sector to build on the considerable technical, aesthetic and environmental strengths of tropical hardwoods to enhance access to high-value markets. Producer countries such as Lao PDR should undertake detailed reviews of the global positioning and competitiveness of their national tropical wood products industries with a view to developing realistic long-term market development strategies. An increase of domestic and regional consumption of wood products in tropical regions is expected, driven by strong population growth and rising per-capita consumption while new demand is also being generated in emerging markets.

A major competitive threat for tropical hardwoods is ongoing efforts to modify the characteristics of temperate hardwoods and softwoods to improve their performance, sometimes with the specific intent of mimicking the aesthetic qualities, durability and strength of tropical hardwoods. Many of these alternative products are sold with FSC or PEFC certification to increase their marketability. Examples of wood modification processes include engineered wood products (EWPs), heat treatment, acetylation, impregnation, surface technologies, and wood plastics composites (WPCs).

Modern technology is also used to improve the range of applications and quality of smaller-dimension, less-durable or FSC-certified tropical wood derived from both plantations and natural forests, notably in Southeast Asia. For example, research has been undertaken in Thailand into thermal treatment of plantation teak and rubberwood to improve durability. Malaysia is engaged in efforts to develop bio-composite materials from wood residues and other natural fibres.

Product innovation and the development of production capacity in these new processes are costly. As a result, prices of some of these new products can be high. Moreover, these technical innovations have yet to fully close the gap to the extent that alternative wood and non-wood products can match all aspects of tropical hardwood performance. On the other hand, significant resources are now being devoted by large corporations in industrialized countries to improve these processes and extend capacity. A lack of equivalent levels of access to new technology in developing countries is likely to become a more significant threat to the competitiveness of tropical hardwood in the future, particularly as high-tech and capital-intensive areas of research, such as biotechnology, nanotechnology and information and communication technologies, have an increasing impact on the performance of materials.

A major strength of tropical hardwoods is their durability. As generally applied within the wood sector, the concept of durability (i.e. the ability to withstand bio-degradation) is much narrower than the concept applied by contemporary designers. The latter also takes into account the concept of adaptability, the extent to which a material can cope with changes in lifestyle and fashion, and the ability of materials to maintain social integration and aesthetic values. This broader concept of durability plays even more to the strengths of tropical hardwood. Wood also performs particularly well on issues of energy content, aesthetics, thermal insulation and health. Indeed, a whole range of environmental issues undermines the competitiveness of most alternative materials compared to wood (Oliver and Donkor 2010).

The wood supplied by plantations is not directly comparable to the wood supplied by natural forests. Fast growth generally implies significantly lower density, strength and durability. The differences can be profound, even when dealing with the same species. For example, the properties of natural-forest teak are very different to the properties of plantation-grown teak, with the latter having a lower density, more sapwood and smaller dimensions. Compared to natural forests, plantations offer a more uniform wood quality, making them better-suited to the large-scale production of pulp, panels and other commodities but generally less appropriate for the supply of decorative products.

The key characteristics of most hardwoods are their high density and aesthetic appeal relative to softwoods. Species with a high density have high strength properties and vice versa. Natural durability is another characteristic of many tropical hardwoods that sets them apart from most softwoods and temperate hardwoods. To a significant extent, therefore, applications for individual tropical hardwood species are dependent on their combination of natural durability, high density and aesthetics. Due to the relative abundance of temperate and boreal wood species that are suitable for a wide host of structural and joinery applications and that have benefited from innovation to extend their range of applications, the use of tropical hardwoods has focused increasingly on either decorative or high-exposure applications (e.g. external joinery, boat-building and marine works).

Some desirable tropical wood properties for quality furniture and interior joinery include appearance, consistent quality, dimensional stability, durability, good machining, staining and finishing properties and hardness (e.g. flooring). Quality furniture and interior joinery are part of the highest-value use category for decorative species. However, solid wood is being increasingly replaced by MDF veneered panels while there is also strong competition from temperate hardwoods and non-wood-surfaces.

Work undertaken to date on the characteristics of tropical species has had limitations. For many tropical species the testing has often been based on a limited number of small sizes of mostly clear wood and has been insufficient to provide comprehensive information on the design properties of particular species (Wesselink and Ravenshorst 2008).

Ratnasingam and Tsai (2005) also noted that one of the largest constraints to maximizing the use of the wood resource is the lack of scientific and technical information pertaining to the use of wood in different applications. Although the basic properties of the common timbers have long been established, information on its behaviour in different applications remains sparse.

As mentioned previously, plantation teak is generally characterized by a high sap content, which has limited its application in garden furniture. In the decking sector, one of the key to success is product diversification. A good strategy is to observe market trends and to continuously look for ways to access new niche sectors through product development. Under certain circumstances, advantages may also flow from the distribution of manufacturing functions amongst a wide range of smaller specialist firms. According to Ratnasingham (2006a), there are significant advantages to be gained in the high-value-added furniture sector from the increased outsourcing of components. The author also noted the reluctance of many players in the Southeast Asian woodworking industry to move their manufacturing operations outside their premises which may be a source of competitive disadvantage. After all, the huge success of the Italian furniture industry has been built on large concentrations of SMEs, each specializing in the production of particular components. This industry structure has helped foster flexibility and innovation in production and design. As Ratnasingham (2006a) explains: “furniture factories that are small and specialized in one single operation have a better chance of keeping the investment costs low, hence reducing the total overhead cost”.

Housing starts[3] and wooden products demand

Factors such as growth in economic output, rising populations and rapid urbanisation in emerging markets are key drivers affecting wooden products demand (Global Construction Perspectives and Oxford Economics 2013). Urbanisation is faced as a key challenge of this century, since two billion additional city-dwells are expected by 2050. Historically, the construction sector has been the primary catalyst for the demand for forest products (United Nations 2012). The construction sector covers new houses building, alterations and additions, which includes adding to or diminishing floor area, modifying the structural design of a building and affixing rigid components which are integral to the functioning of the building (FWPA 2010). The value of alterations and additions gives an indication on the performance of the home renovation and outdoor and appearance grade timber markets (URS 2012b).

In 2012, construction globally accounted for USD 8.7 trillion (Global Construction Perspectives and Oxford Economics 2013). This value is forecasted to rise over 70% to USD 15 trillion in 2025. Emerging markets are expected to undertake the global construction activity in 2025 due to required investment to support economic growth and social transformation. Construction of new homes, offices, factories, schools, hospitals and infrastructure will come as a result. China, the United States, India, Indonesia, Russia, Canada and Mexico are the seven nations which will account for 72% of the expected growth to 2025. By 2025 almost 60% of all global growth in construction will be concentrated in China, India and the United States.

China alone will account for 36% of all growth in construction to 2025, representing over a quarter of all construction output globally (Global Construction Perspectives and Oxford Economics 2013). Over the period to 2025, growth in construction in China is expected to slow, especially after 2020, but will still be amongst the five fastest growing construction markets. This slowdown in growth will be due to two main reasons: a lower population growth as a result of the ‘one child policy’ (since 1979) and a slowdown in economic growth. However, increasingly affluent consumers will demand for larger homes. The number of Chinese households with at least USD 30,000 income is expected to increase tenfold, accounting for at least 30 million in 2020.

North America will have the highest growth in developed country regions, forecasted to be almost 40% larger by 2025 than in 2007 (Global Construction Perspectives and Oxford Economics 2013).

[3] Housing starts is an economic indicator that reflects the number of privately owned new houses on which construction has been started in a given period (Wikipedia 2013).

Through the same period, construction in Western Europe is forecasted to be almost 5% smaller. Emerging Asia is the fastest growing region. While Western economies have slowed, Asia has maintained strong growth and has been less impacted by the recent global economic crisis (AECOM 2013). The construction activities are expected to shift away from non-residential structures to move towards infrastructures. Residential projects as an important part of the construction activities are forecasted in a longer term. Construction spending in Indonesia, the world's fourth most populous country, had around half of this expenditure in funding infrastructure projects. Jakarta, its capital city, is viewed as the number one city in the Asia-Pacific region for potential market growth and profitability.

Sub-Saharan Africa is expected to be the second highest growth region for construction globally as a result of increasing populations, rapid urbanisation and needed development of infrastructure (Global Construction Perspectives and Oxford Economics 2013). Nigeria alone requires the construction of almost 20 million new homes. There is a great market opportunity for affordable housing construction, with some 270 million new homes needed in China and India alone by 2025.

North America

United States of America

Housing starts, home resale, and home repair and remodel are usually demand drivers for the United States furniture sector (Pirc and Vlosky 2010). In the United States, the housing market has not yet shown any strong recovery from the housing crash of 2006 (United Nations 2012). New housing starts and sales were at their lowest levels since modern records began to be kept since 1963. From 2005 to 2012, construction output in the United States decreased by 30% (Figure 1) (Global Construction Perspectives and Oxford Economics 2013). In 2010, China overtook the United States and became the world's largest construction market, accounting in 2012 for 18% of total global construction. There is an expectation of improvement in the United States housing sector for the next years and an average annual growth rate of 10% is forecasted until the year of 2016 (ITTO 2012).

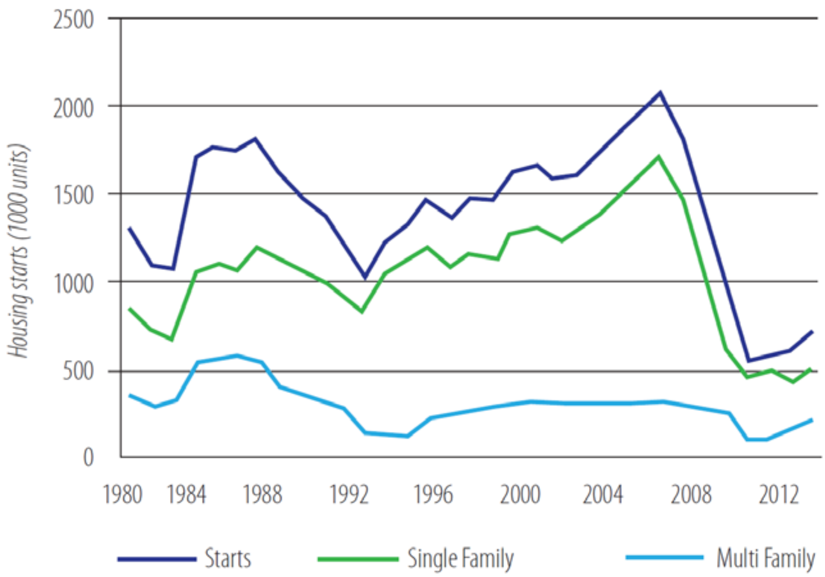

Figure 1 United States housing starts, 1980-2011 (U.S. Census Bureau 2013).

The United States Bureau of the Census estimated an annual 746 000 housing starts in July 2012, considerably less than the high in 2005 at 2.16 million starts. New housing starts have been competing with the supply of both existing homes and foreclosed homes on the market, and the size of new homes has reportedly been dropping. Although there were signs that single-family housing starts may pick up in 2012, this hinged on sustained employment growth; the risks of the broader economy weakening could slow the housing rebound. (JCHS 2012). With housing starts at a record low, spending on private residential construction fell significantly between 2006 and 2009, although public sector construction spending increased and home remodelling activity picked up in 2010 (Figure 2).

In 2013, over 1 million housing starts were recorded, a 29% increase from 2012 (Global Wood 2013b). The effect of the United States housing activity recovery in 2013 is already reflected in a New Zealand wood moulding manufacturer (Friday Offcuts 2013). Home renovation and the participation of professional dealer channels in sales have particularly influenced in this growth. Investment in home renovation is expected to increase due to rising in home prices and sales (ITTO 2013b). Flooring replacement is the most common home renovation project, following by replacing kitchen and bathroom cabinets.

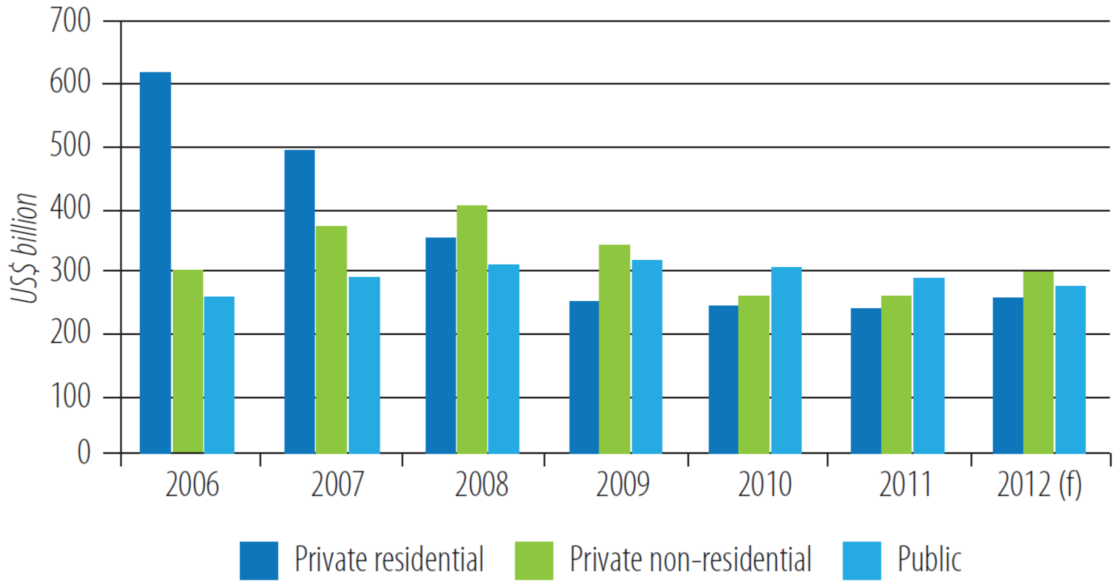

Figure 2 United States housing spending, 2006-2012 (U.S. Census Bureau 2013). f=forecast

Europe

European demographic trends are characterised by declining population growth, with declining birth rates (especially Germany) and high life expectancies resulting in significant ageing of the population. Although China also has an ageing population, its consumption growth has been fuelled by rising household incomes and urbanisation, with considerable scope for further growth in those areas. In contrast, European incomes are high and European Union (EU) countries are highly urbanised, suggesting that overall consumption is not likely to grow significantly in the future. EU countries have traditionally been major destinations for tropical wood products, with the United Kingdom (UK), France, the Netherlands, Italy, Germany, Portugal, Spain and Belgium importing substantial volumes of tropical sawnwood, veneers and plywood. These imports are mostly remanufactured into high value furniture, joinery and flooring products which are consumed in EU markets. Although there is some variation between countries, the crisis that started around 2005 resulted in significant reductions in levels of consumption and imports of tropical wood products which have not recovered to pre-crisis levels. A growing trend evident before the crisis has been declining imports of tropical primary products and a rise in imports of finished products, primarily from Asian suppliers (Maplesden et al. 2013).

A recovery in new home starts has been delayed in Europe by various economic conditions (United Nations 2012). These include weakened economies; high sovereign debt; bank solvency issues; high unemployment; consumer uncertainty; and in some countries a housing crash (Global Wood 2013c). EU activity in all construction sectors declined after the recession in 2008, although non-residential construction and civil engineering were less affected. New housing starts (single and multi-family) followed the same trend as the United States, falling from a high of 2.38 million homes in 2006 to about 1.1 million in 2009. As of now, nearly 75% of all housing construction in the EU is in five countries - France, Germany, Italy, Spain and the UK (Maplesden et al. 2013). The European markets are unlikely to offer any real chance for market expansion until the governments in member states expand major infrastructure and construction projects on which there has been a lot of talk but little action (ITTO 2013e).

Germany

In 2011, German construction industry activities grew by 6.5%, recovering for the slowdown in earlier years. In 2012 there was a 1% growth in construction activities and residential construction remained as the strongest sector (Atradius 2013). The number of houses has reached almost 41.3 million in May 2011 (Spiegel 2013). Germany is expected to remain the largest construction market in Western Europe between 2012 and 2025 ahead of France (Global Construction Perspectives and Oxford Economics 2013). However, the population is expected to shrink by almost two million people by 2025, leading to less demand for new housing. A smaller working age population could reduce offices, factories and other buildings construction. Social infrastructure such as hospitals and clinics could increase due to the population ageing. Still, despite an expected short-term cyclical recovery, Germany construction growth outlook is among the weakest in Western Europe.

France

In 2012, France was one of the most important European construction markets (Ryan, 2012). According to the Fédération des Promoteurs Immobilliers (French Real Estate Federation), new private housing sales fell 27% year-on-year from January to September 2012. A current stagnation in France's economic performance will drag its construction market down further. The cut in tax incentives as a measure to reduce the budget deficit will hit investment in residential construction as well as the rising unemployment and more restrict access to bank loans.

United Kingdom

As a response to the global financial crisis, house building has remained low in the UK (Global Construction Perspectives and Oxford Economics 2013). In the UK, both ageing infrastructures modernization and new homes building are needed, which stands it out from the rest of Western Europe as a growth market (Global Construction Perspectives and Oxford Economics 2013). Its construction volumes are forecasted to grow at more than double the average in Western Europe to 2025, when UK size of construction market will rival Germany's.

Asia

Asia is the most populated continent in the world, but many people are still without their own residential accommodation. According to Asian construction outlook (AECOM 2013), construction spending in Asia is forecast to account for almost one half of total global construction spending by 2020. Recent rapid growth in the region has largely been at the expense of declines in both Western Europe and North America. Asia is tipped to be the world's fastest growing construction market between now and 2020, with Indonesia and in particular Jakarta forecast to have the highest potential in terms of both market growth and profitability. While Western economies have slowed, Asia has maintained strong growth and has been less impacted by the global economic downturn in recent years. Asia has also become increasingly dependent on domestic demand, through burgeoning affluence and urbanization, for its continued growth. Asia is the largest regional construction market worldwide, accounting for some 40% of global construction spending in 2012. Indeed, construction spending in Asia is forecast to account for almost one half of global construction spending by 2020. In terms of market size, China is followed by Japan, India, Korea and Indonesia. However, the strongest growth in construction spending will be seen in China, India, Indonesia and Vietnam.

Japan

Currently, Japan is going through an aging population phenomenon and the decline in the labour force comes as a result (Shirakawa 2013). Population aging also brings an expansion in demand in the housing market. The child-raising generation will potentially demand larger housing, though such demand has not been satisfied especially in the metropolitan areas. Members of the elderly generation continue to live in large houses that had been acquired during their working age. In Japan the share of second-hand dwellings in the total housing market, which combines new and second-hand dwellings together, is only 12 %, less than the 79 % in the United States and 86 % in the United Kingdom. The potential demand for housing in Japan will be cultivated by meeting the different needs in different stages of life, and this will eventually invigorate related markets, such as electric home appliances and other household items, as well as remodelling.

A temporary boost in Japanese construction was observed in 2011 due to natural disasters (Global Construction Perspectives and Oxford Economics 2013). Reconstruction for the earthquake and tsunami disaster started in May 2011 and housing starts also became active supported by measures to improve house acquisition. However, after September 2011, housing starts decreased due to a suspension of those assistance measures and will also be affected in the long-term by a declining population and ageing workforce, with a reduction expected in household formation (Maplesden et al. 2013). In June 2013, housing starts in Japan totalled 83,704, over 15% compared to June 2012 (Global Wood 2013a). Japan spending in construction is expected grow through to 2018 as a consequence of the earthquake/tsunami reconstruction activities (AECOM 2013).

China

China is the world's largest construction market, accounting for 41 % of the Asia Pacific total construction spend in 2012. This makes it almost three times the size of the Japanese construction market. With a construction spend of USD 1.25 trillion in 2012, the Chinese construction sector makes up 19 % of the country's GDP. Furthermore, construction spending is forecast to grow at 8 % pa over the next five years, which is well above the average for the region as a whole. China's construction industry has been a driving force behind the nation's rapid economic growth ever since the government deemed it one of the cornerstones of the national modernization agenda in the 1980s (AECOM 2013).

The residential, infrastructure and non-residential sectors each accounted for approximately one-third of total construction expenditure in 2012. Geographically, the picture is less balanced. The more developed coastal region in East and South China constituted 55 % of total construction spending in 2011. China's sustained demand for new residential buildings, non-residential structures and infrastructure has generated a multitude of construction projects (AECOM 2013).

Construction spending growth in the residential sector (7 % pa) is expected to remain relatively stable following the containment of the recent property bubble. Growth in non-residential structures (7 % pa) is slowing as export markets for Chinese manufactured products continue to contract. Meanwhile, infrastructure spending (9 % pa) is expected to grow the fastest over the period and is thought likely to remain the fastest growing sector well into the next decade. However, with increasing urbanization, residential spending growth is likely to gather momentum towards the end of the decade once the current property surplus has diminished. Rapid population growth is expected in mega cities Beijing, Chongqing, Guangzhou, Shanghai and Shenzen, along with several second tier cities, through to 2020. This will spark significant increases in residential construction spending over the longer term (AECOM 2013).

The China Timber and Wood Products Distribution Association (2013) expects strong medium-/long-term demand that should keep China's main wood material imports and wood product exports robust and a slowing of the rate of growth of Chinese wood products demand (however, large-scale consumption will continue). The urbanization movement in China will continue to support strong demand for wood imports in the next 20 years (every 1% of urban growth resulting in 13 million new urban residents needing homes, schools, hospitals). Faster growth of cities in mid-China and western China than in eastern China is expected (third- and fourth-tier cities are expected to grow faster than larger cities). Rising Chinese labour rates will also create new opportunities for high-quality, semi-finished and engineered wood product imports.

India

Whilst the construction market in India was large, at USD 477 billion in 2012, which was 22 % of India's GDP, it was only a third of the size of the construction market in China, despite similar population levels. This suggests that India's built environment market offers a significant opportunity. Indeed, construction spending growth in India is forecast to be the fastest in the world at 9 % pa through to 2018. However, given the current constraints on public finances, India is seeking to increase private funding for much of the new infrastructure needed (AECOM 2013).

In the longer term, residential construction spending is expected to gather momentum as increasing urbanization continues to drive the demand for new homes in India's major cities. Indeed, residential spending is forecast to be the fastest growing construction sector in India through to 2018, at 10 % pa. It should be noted that this is from a relatively low base. However, this flags a significant market opportunity: The populations of mega cities Delhi, Mumbai and Kolkata, along with several second tier cities, are likely to see huge rises through to 2020. This will spur significant increases in residential construction spending (AECOM 2013).

Indonesia

According to AECOM (2013), the Indonesian capital Jakarta is viewed as the number one city in the region for potential market growth and profitability where expectations for growth and profitability in Chinese cities are viewed as "relatively poor". Construction spending in Indonesia accounted for more than a quarter of the country's GDP in 2012 at USD 183.8 billion. The Indonesian construction market is significant in both size and growth prospects for the next five years (5 % pa). As the fourth most populous country in the world, Indonesia's construction sector is an important future component of the country's wider economy. Geographically, the focus is shifting from the West to the Eastern provinces, although with the bulk of Indonesia's population in the West of the country, construction spending growth is likely to remain robust in Java.

Hong Kong

Construction spending in Hong Kong was USD 14.1 billion in 2012 and spending is forecast to grow by 2.5 % pa over the next five years (AECOM 2013). The Hong Kong government plans to increase land released for residential development. This is aimed at addressing the significant undersupply of housing units (particularly small apartments) and the overheating of the property market, which together have caused much housing to become unaffordable. The land policy is set to provide a solid base for the residential construction market in the coming years, with plans to increase the supply of both public and private-sector housing. Among the key current housing projects are North East New Territories New Development Areas and Hung Shui Kiu New Development Areas.

Malaysia

In 2012, USD 17.6 billion was spent on construction in Malaysia and spending is forecast to grow by 4.5 % pa over the next five years. However, in future, infrastructure will play a larger role. The Malaysian construction industry is expected to sustain growth driven partly by long-term infrastructure projects, as well as mass affordable housing schemes and economic development corridor programmes in peninsular and east Malaysia.

Thailand

According to AECOM (2013), Construction spending in Thailand was USD 30.3 billion in 2012 and is forecast to grow by 3.4 % pa over the next five years. In the short-term, the industry is likely to be boosted by reconstruction following the floods of 2011. Demand in the Thai property market remains resilient and a sustainable growth in this sector is expected. Housing demand will increase, driven by private developer-built housing, upcoming mass transit extension lines and market opportunities upcountry. Geographically, construction spending is likely to be concentrated in major population centres within the central provinces, including Bangkok and the immediate surrounding area.

Vietnam

Vietnam, despite being one of the smaller construction markets in Asia, is set to see rapid growth in spending on residential, non-residential and infrastructure projects over the next five years (AECOM 2013). The construction market in Vietnam, while of limited size, is set for above average growth rates through to the end of the decade. Construction spending in 2012 was some USD 18.6 billion, which accounted for roughly 20 % of the country's GDP. Spending is forecast to grow by close to 7 %

pa over the next five years. There is currently a mismatch between demand and supply in the Vietnamese property market. Demand persists for affordable housing but developers of mid to high end properties are struggling to attract buyers. Geographically, much of the investment will be focused on the cities of Ho Chi Minh and Hanoi and the North-South corridor in between.

Australia

In Australia, total building and construction work done by 2013 has been 2.3 times its 2001 level, with an annual average growing rate of 7.2% (Gelber 2013). To this factor, there has been a positive contribution of dwellings, non-dwelling, building and non-building construction. However, total building and construction has already fallen about 20% over the last three years and further slowdown is expected over each of the next four years. Construction associated with mining and heavy industry has a lot to do with the occurred and expected slowdown in building and construction activities. The industry has increased 23 times since 2001 levels, representing an average annual growth of 30%. As a result, there has been a shift in construction-related companies and workers towards the industries and servicing mining and housing had to be provided to these workers. Residential building (housing construction) is expected to grow 8 to 10% over the next four years. Total non-residential construction will fall 7% due to a growth in commercial and industrial offset by falls in social and institutional building.

The number of finance approvals for the construction of new residences increased by around 5.4% over 2012. The major source of growth in residential approvals was derived from a 9.9% increase in private sector non-house approvals which includes apartments, town-houses and semi-detached dwellings, which in Australia appear to be an increasingly popular form of residential construction. Over the year beginning to September 2012, residential approvals in Victoria have declined by around 13% (URS 2012a). Private detached housing approval remained to be around 8% lower over the 12 months to September.

Market trends for outdoor timber products are largely linked to residential building activities and renovation market. Construction of higher density, non-house dwellings, traditionally uses less timber than detached housing construction (URS 2012b). Therefore, the recent trend of increasing non-house approvals presents some challenges for the timber industry to develop sustainable markets in town-house and apartment construction. There was a peak in the national value of alterations and additions during the beginning of 2011, which was followed by a sharp decrease over the year to September 2012 (URS 2012b).

Global trade of value added wood products (VAWPs)

Consumer and producer countries were severely impacted by the global financial and economic crisis which stemmed from the United States subprime mortgage crisis in 2007. The crisis triggered a sudden plunge in housing starts and consumer demand for wood products in traditional markets, resulting in cancelled orders, depressed prices and a severe rationalization of the tropical wood processing industries in producer and consumer countries. Significant declines in consumer spending, housing starts and construction activity in the United States and EU, which are significant end-use markets for tropical wood products. While demand waned in Europe and the United States as a result of the crisis, domestic demand in producer countries and in some parts of Asia, expanded. In the long-term the crisis may have reinforced existing trends in the tropical trade as consumer demand for end-use tropical wood products exports shifts from the United States and Europe to Asia (Maplesden et al. 2013).

Over the last two decades China has become the most important country importer and exporter of wood-based products, including wood products of tropical origin, with urbanisation and income growth being the major drivers of domestic consumption. Importantly, China recovered strongly from the worst effects of the global economic crisis which had reduced demand for its value-added products in consumer markets (Maplesden et al. 2013).

Global trade in furniture has grown in the past decades due to innovations on packing and shipping, such as ready-to-assemble furniture as well as decreasing world trade barriers (Han et al. 2009). The value of global imports in 2006 was USD 118 billion (ITTO 2012; United Nations 2012), when a pre-crisis peak on imports was remarked (ITTO 2012). After this year, this value started to drop, achieving USD 97 billion in 2007 (Han et al. 2009) and the lowest value of USD 78.2 billion in 2008 (European woodworking 2012). Since 2009, when the trade value was USD 96 billion, the furniture global trade started to recover, increasing year after year. In 2010 the trade value was USD 107 billion followed by USD 109 billion in 2011 (ITTO 2012; United Nations 2012) and USD 116 billion in 2012 (European woodworking 2012), almost reaching pre-crisis value recorded in 2006 (Figure 3).

According to a Furniture Today market research cited by United Nations (2012), the fastest growing channel for furniture distribution are direct channel to consumer, which includes internet sales and retailing through designer stores, accounting together for almost one fifth of all sales.

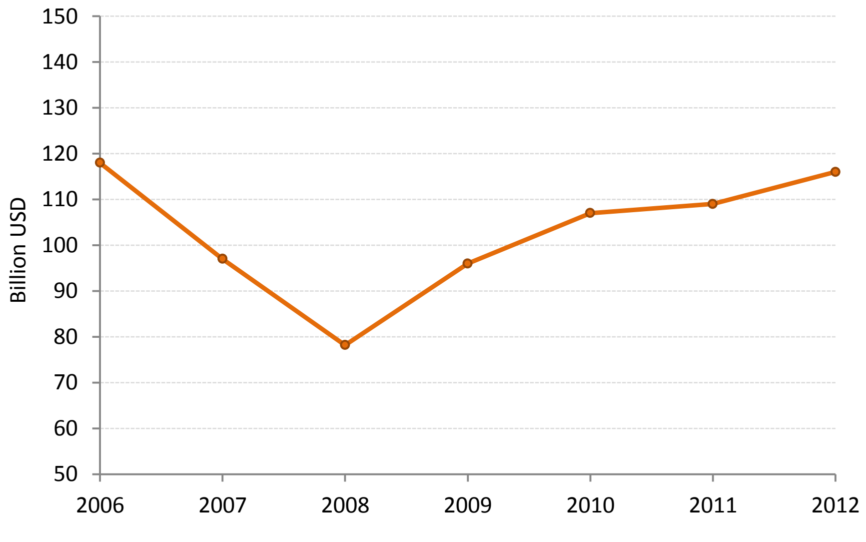

Figure 3 Global annual value of imports of wooden furniture since 2006

Singapore, India, Mexico, Brunei Darussalam, Angola, Vietnam and Malaysia were the major tropical importers of VAWPs (ITTO 2012). India, Brunei Darussalam, Vietnam and Costa Rica, particularly, recorded significant increases in their secondary processed wood products (SPWP) imports in 2011. Brunei Darussalam's imports have almost doubled the value between 2010 and 2011 to $374 million.

Market Overview

Value added wood products

Furniture

Over the past ten years, the United States, Germany, France, UK and Japan were the biggest importing countries of wooden furniture (ITTO 2012; United Nations 2012). The United States represented the largest importer of wooden furniture, accounting in 2011 for 24% of the global imports in value (ITTO 2012), USD 12.4 billion (United Nations 2012). Europe imports of wooden furniture and parts in 2011 were USD 22.6 billion worth, 10% more than in 2010, accounting for more than 40% of the world import value.

According to the United Nations (2012), Asia was the major supplier of wooden furniture to the United States in 2011, accounting for 71.6% (USD 8.8 billion), followed by North America (11.6%, USD 1.44 billion), Europe (10.3%, USD 1.28 billion) and Latin America (6.2%, USD 760 million) (Figure 4). Both Germany and France relied mostly on European countries as their main furniture suppliers, which accounted for 81.9% (USD 5 billon) and 76.8% (USD 3.5 billion) of the total imports, respectively. Still, imports from Asian countries in Germany accounted for USD 1.06 billion and in France for USD 970 million. The UK shares imports from both Asian (50.1%, USD 1.95 billion) and European suppliers (47%, USD 1.83 billion). Japan relied mostly on Asian countries suppliers, which in 2011 represented 83.5% (USD 1.25 billion). Most of North American products were exported to the United States. Both the United States and Germany have slightly increased the value of imports in 2011, while France remained almost the same. The UK imports decreased 5% and Japan imported 24.4% less furniture in 2011. Italy is one of Europe’s largest hardwood consumers and is a good example of a relatively open market dependent on imported wood (Oliver and Donkor 2010).

Singapore remained one of the most important tropical importers of wooden furniture and parts, with imports increasing 14% to USD 249 million over the 2010/2011 period (ITTO 2012).

Joinery and carpentry

There was a significant drop in global imports of joinery and carpentry items from pre-crisis levels, ranging on average from 20% to 30% (United Nations 2012). The United States imports over the 2006 to 2011 period decreased up to 60%. German imports in 2011 grew by 12% and French imports increased 6%. From 2010 to 2011, global imports value of joineries increased 9%, from USD 11.2 billion to USD 12.2 billion (ITTO 2012). The United States was the world’s largest importer of joinery and carpentry items, importing USD 1.4 billion in 2011. Japan was the second, with imports value remaining almost equivalent to the United States (USD 1.4. billion) in 2011. The aggregate imports of joineries in Europe were USD 5.8 billion worth, accounting for 48% of the world imports in 2011. In 2010, Europe had imported 20% less (USD 4.6 billion). Germany was the European major importing country, with imports valued at USD 932 million, up 20% from 2010 values. The UK, previously the European major importer, increased its imports by 1%, from USD 782 million in 2010 to USD 790 million in 2011.

According the United Nations (2012), in 2011 Japan overcame the United States and became the world’s major importer of joinery and carpentry wood products with import values jumping from

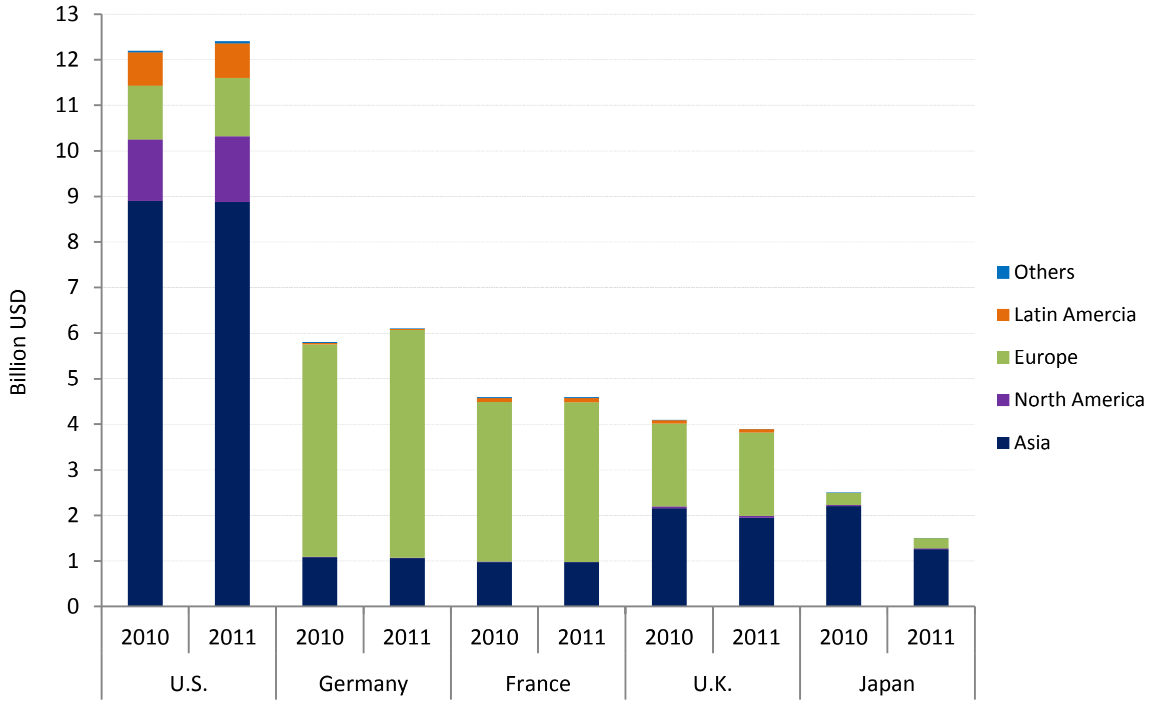

Figure 4 Furniture and parts import by major importing countries and main exporting regions (United Nations 2012)

USD 1.0 billion, in 2010, to USD 1.3 billion in 2011 (a 30% increase). Imports from the United States, in the other hand, fell by 8.3% over the same period. Asia was Japan's main supplying region in 2011, accounting for 60% of total imports (USD 780 million), followed by Europe (33.1%, USD 430.3 million) and North America (2.7%, USD 35.1 million). Imports from other regions accounted for 4.1%, (USD 53.3 million). There were no joinery products from Latin America registered in Japan's imports during both 2010 and 2011 years.

The major exporting regions to the United States in 2011 were North America, accounting for 58% (USD 638 million) of total imports, followed by Asia (19.4%, USD 213.4 million), Latin America (16.5%, USD 181.5 million), Europe (6%, USD 66 million) and others (0.1%, USD 1.1 million). In 2010, United States imports of joinery products from Asia represented 37.3%, falling 17.9% in 2011. Imports from North America, in the other hand, increased 13.9% over the same period. European and Latin American products market share in the United States also increased 0.8% and 3.2%, respectively, between 2010 and 2011.

The UK was mainly supplied by European manufacturers of joinery in 2011, from which products imports accounted for 60.5% (USD 484 million). Asia was the second major porting region (31.5%, USD 252 million), followed by North America (2.7%, USD 21.6 million), Latina America (2.7%, USD 21.6 million) and others (2.5%, USD 20 million).

Germany imports in 2011 were mainly represented by European suppliers, accounting for 88.2% (USD 793.8 million). Asia was the second main supplying region of joinery items to Germany (10.7%, USD 96.3 million), followed by North America (0.2%, USD 1.8 million) and Latin America (0.1%, USD 0.9 million).

Suppliance from other regions accounted for 0.8% (USD 7.2 million). The major exporting region to France in 2011 was Europe, accounting for 79.7% of total imports (USD 478.2 million). Asia was the second major supplier of joinery products to France (15.4%, USD 92.4 million), followed by Latin America (3.6%, USD 21.6 million) and North America (0.6%, USD 3.6 million). Other regions exports to France represented 0.7% (USD 4.2 million) (Figure 5).

Singapore continued to be the major tropical importer of carpentry, despite the 12% decrease on the 2010, with imports valued at USD 55 million in 2011 (ITTO 2012). India imports were up 55% over the same period, remaining USD 42 million in 2011.

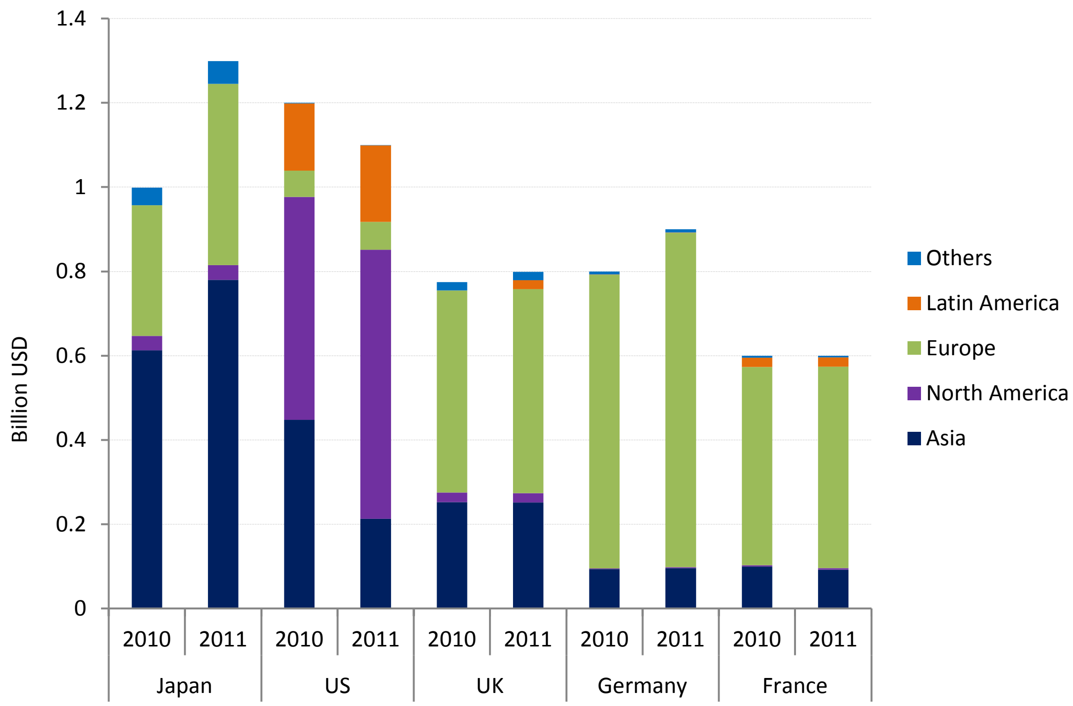

Figure 5 Builders' and joinery imports by major importing countries and their respective main exporting regions (United Nations 2012)

Mouldings

In 2011, world imports of mouldings totalled USD 4.9 billion, 6% higher than in 2010 (ITTO 2012). The United States was the major mouldings importing country, with value imports declining 10% to USD 0.7 billion despite the stable housing construction over the year (United Nations 2012). From 2006 to 2011, the United States import values decreased 60%. Germany increased by 13% and from France by 20%. The UK imported 10% less in 2011 than in 2010. The United States trade values in 2011 were 60% lower than in 2006. The Latin American producers have 70% of the United States imports market share. Mouldings demand is increasingly concentrated on painted products making meaningless clear knot-free pine price advantage. It is noteworthy that the United Nations (2012) does not mention Canada as one of the global major mouldings importing country, despite information provided by ITTO (2012), pointing out Canada as the second major mouldings importing country.

Canada maintained its position as the world's second largest importer with imports valued at USD 372 million, 11% less than in 2010. Japan was the third largest importer with imports valued at USD 347 million, a 22% increase over 2010 value. European countries imports in 2011 were USD 2 billion worth, up 20% compared to 2010 import value. The UK imported USD 242 million in 2011, 10% less than in 2010 (USD 269 million). Mexico remained the largest tropical importing country in 2011, with imports valued at USD 70 million, almost doubling over 2010 value. Malaysia was the second major tropical importing country, with imports valued at USD 42 million. Singapore and India were the third and fourth major tropical importing countries, respectively.

The main supplying region to the United States in 2011 was Latin America, accounting for 70.3% of total imports (USD 492.1 million) (United Nations 2012). Asia remained the second major exporting region (25.1%, USD 175.7 million) followed by Europe (3.1%, USD 21.7 million), North America (1.2%, USD 8.4 million), others (0.3%, USD 2.1 million). From 2010 to 2011, both imports from Latin America and Asia increased 8% and 3.9%, respectively. During the same period, United States imports from North America declined 9.9%. The main supplying regions to Japan in 2011 were Asia, with imports accounting for 77.3% (USD 231.9 million), Europe (11.5%, USD 34.5 million), North America (6.8%, USD 20.4 million), Latin America (3.7%, USD 11.1 million) and others (0.8%, USD 2.4 million). In 2011, Germany was mainly supplied by European countries, with imports accounting for 60.8% (USD 182.4 million). The second major supplying region was Asia (27.4%, USD 82.2 million) followed by Latin America (8%, USD 24 million) and North America (1.4%, USD 4.2 million). Mouldings supply by other regions accounted for 2.4% (USD 7.2 million). France imported mainly from European countries in 2011, with imports accounting for 57.2% (USD 171.6 million). Latin America was the second major supplier of mouldings to France (27.5%, USD 82.5 million) followed by Asia (12.6%, USD 37.8 million) and North America (0.6%, USD 1.8 million). Imports from other regions accounted for 2.1% (USD 6.3 million). The UK, in 2011 imported mainly from Asian countries, with imports accounting for 53.1% (USD 106.2 million). The second major supplying region of mouldings to the UK was Europe (39.7%, USD 79.4 million) followed by North America (4.3%, USD 8.6 million), Latin America (2.3%, USD 4.6 million) and others (0.6%, USD 1.2 million) (Figure 6).

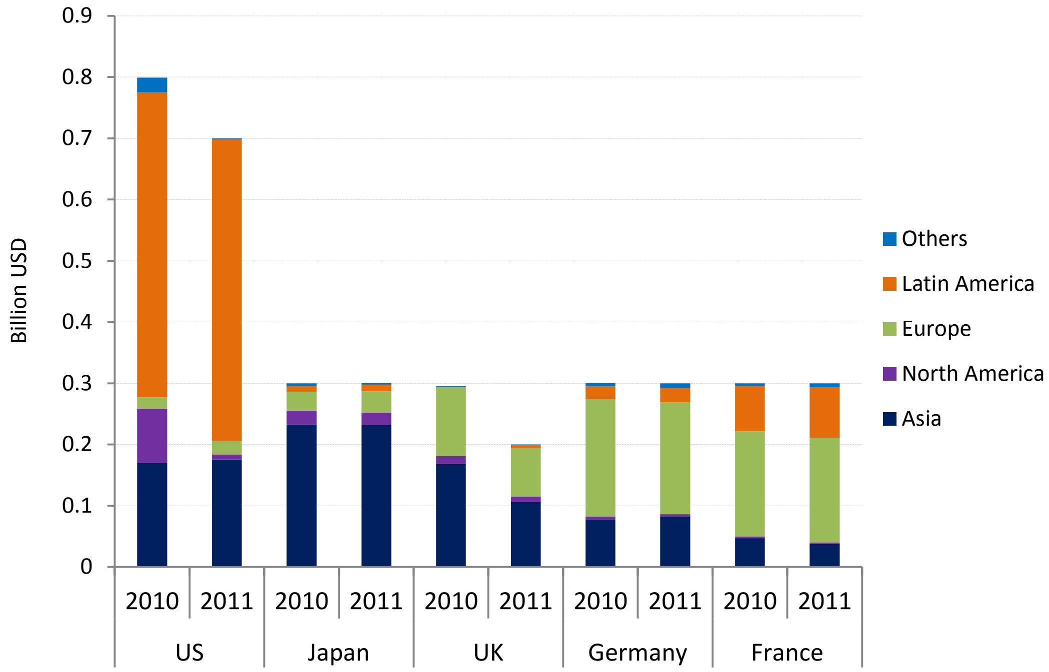

Figure 6 Mouldings imports by major importing countries and their respective main exporting regions (United Nations 2012)

Major importing countries of value added wood products

The dominant markets for secondary processed wood products are the developed economies - notably the United States, EU countries and Japan – which were severely affected by the global economic crisis (Fig. 7 & 8). The global demand for wooden furniture and joinery products followed the trend in housing starts and consumption in those countries and global imports dropped in 2009, ending a period of significant growth in global trade over the previous decade (Figure 7; Figure 8). With some signs of recovery in construction demand, world SPWP imports picked up in 2010 and were valued at USD 82 billion, although this value was significantly lower than the pre-crisis peak in 2007 (Maplesden et al. 2013). In 2011 world imports of SPWP was up 8%, with imports amounting to USD 88 billion (ITTO 2012).

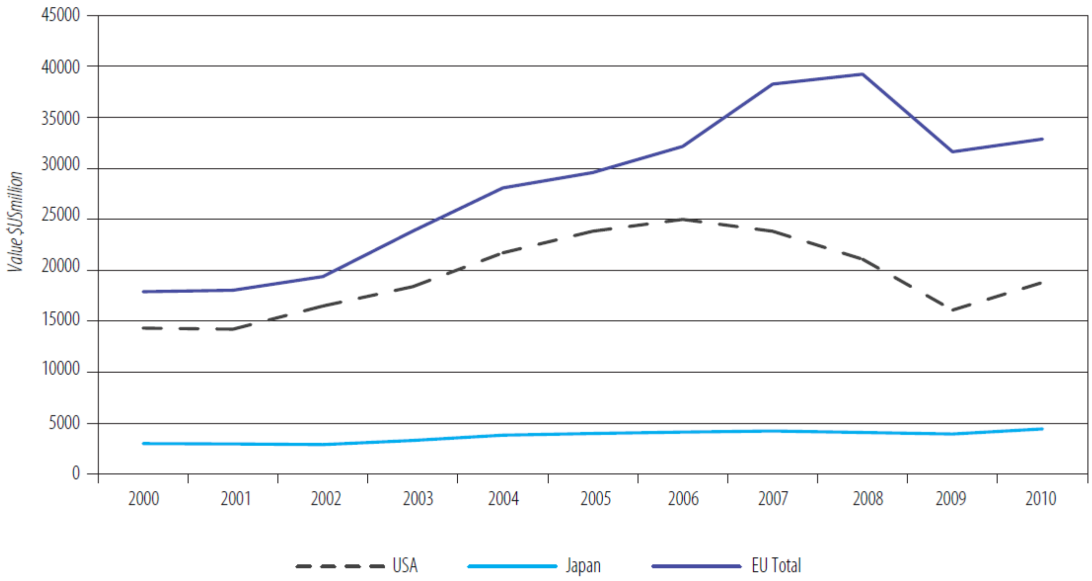

Figure 7 Secondary processed wood products imports, major importers, 2000-2010 (COMTRADE 2013)

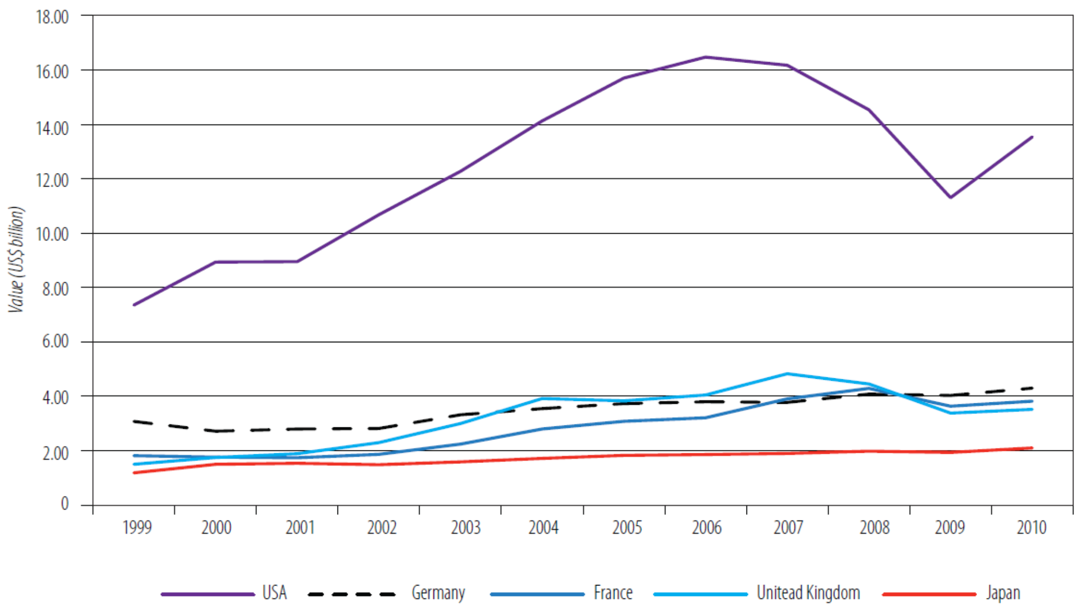

Figure 8 Wooden furniture and parts imports, major importers, 1999-2010 (COMTRADE 2013)

United States

In the United States - the major country importer accounting for nearly one-quarter of world imports - imports of SPWPs slowed in 2007 and 2008 and fell 24 % in 2009, as consumer demand plummeted following the collapse in housing starts, higher unemployment and reduced household income. Of the top 20 countries shipping wooden furniture to the United States, a majority experienced double-digit falls during the period. Although China remained the dominant supplier its shipments to the United States had fallen in 2009, while imports from Vietnam had increased, reflecting Vietnam's comparative advantage in labour and overall production costs compared with China, and as China shifted its focus on developing other markets.

Furniture is the single largest VAWP imported by the United States, accounting in 2011 for 73.9% of total United States imports in value. Imports of furniture and parts in 2011 were USD 13.2 billion worth, 3% lower than 2010. According to ITTO (2013a) the U.S. imports of wooden furniture excluding parts in 2011 were USD 10.7 billion worth. Therefore, furniture parts imports were around USD 2.5 billion worth. Imports of joinery and carpentry were USD 1.4 billion worth in 2011 and 3% lower than in 2010. Moulding imports value in 2011, which includes wood components but excludes furniture parts, represented USD 864 million, 0.5% higher than in 2010. The United States was in 2011 the major importer of other VAWPs, importing USD 2.4 billion worth, up 2% from 2010 import values (Figure 9).

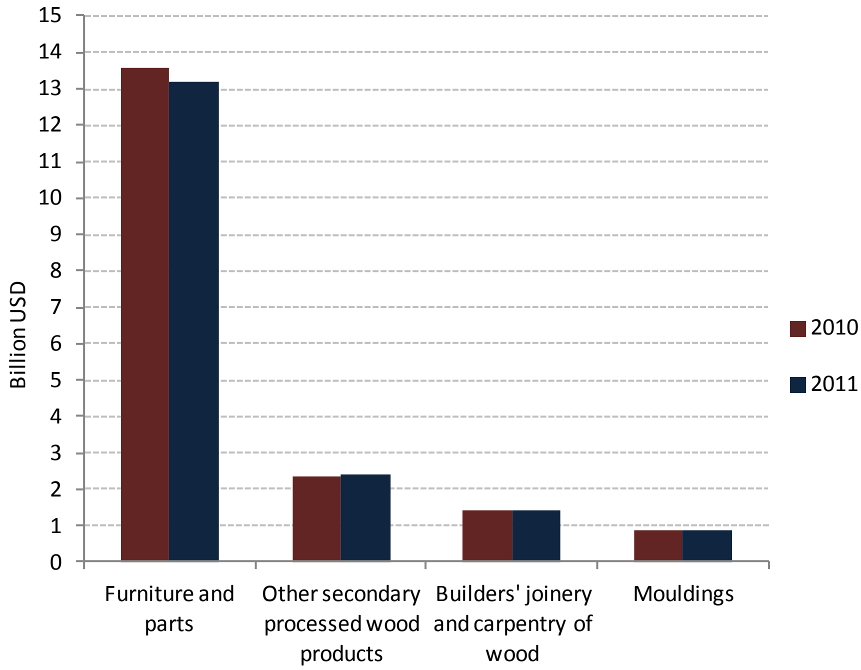

Figure 9 Value of U.S. imports of SPWPs in 2010 and 2011 (ITTO 2012)

Furniture

In 2012, the United States imported 8% more wooden furniture than in 2011, with import values increasing from USD 10.7 billion to USD 11.6 (ITTO 2013c). In 2011, United States imports of from China were valued at USD 5.3 billion, accounting for 49.2% of United States total imports. In 2012, imports from China were up 8.4% to USD 5.7 billion and its representativeness remained at 49.3%

(ITTO 2013a). China's presence in the world furniture has grown over the years and it has been representing the biggest United States wooden furniture supplier since 2000 (Pirc and Vlosky 2010). In 2012, imports from Vietnam were USD 1.8 billion worth, up 22% from the amount imported in 2011, when imports were valued at USD 1.4 billion (ITTO 2013a). Imports from Vietnam represented 15.2% amongst all the United States imported furniture in 2012. Canada wooden furniture exports to the United States were valued at USD 1 billion in 2012, accounting for a 0.8% increase from 2011 value (USD 999.1 million). Its representativeness as wooden furniture supplier to the United States in 2012 accounted for 8.7%. Other United States suppliers included Malaysia, accounting for 5% (USD 597 million) of United States total imports in 2012, Mexico (4%, USD 460 million) and Indonesia (4%, USD 460 million). Imports of furniture from Mexico, Malaysia, and Indonesia from 2011 to 2012 were up 18.9%, 10.2%, and 8.4%, respectively (Figure 10).

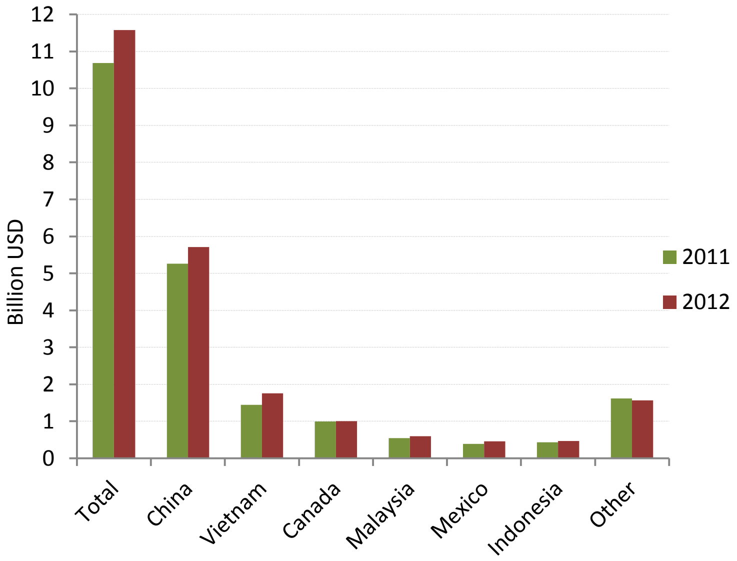

Figure 10 U.S. imports of wooden and major suppliers of furniture, excluding furniture parts (ITTO 2013a)

In June 2013, year-to-date United States imports of wooden furniture (USD 1.2 billion) were 3% higher than in June 2012 (ITTO 2013b). From March 2013 to June 2013, the United States has increased its total imports of wooden furniture on an average rate of 12.9% per month, valued at USD 116.3 million more per month (Figure 11). During this period, China was the major wooden furniture supplier to the United States. China's furniture shipments to the U.S. were on average USD 480.9 million worth per month, accounting for 46.8% of total imports of wooden furniture. Vietnam was the second major supplier (USD 114.7 million, 11.1%), followed by Canada (USD 94.4 million, 9.2%), Indonesia (USD 49.9 million, 4.9%), Malaysia (USD 35.1 million, 3.4%) and Mexico (USD 34.9 million, 3.4%). Sharp decreases in import value of wooden furniture from Vietnam and Malaysia have been recorded in May by ITTO (2013b). Reasons for these drops are not known at the moment but imports from these countries returned to normal the month after. Imports value from China was on average 24.1% higher per month, which accounts for a monthly increase of USD 91.5. From March to June 2013, China Vietnam and Canada exports to the U.S. were up 86.7%, 42.9% and 15.4%, respectively. During the same period, imports from Indonesia and Malaysia were down 3.7% and 11.1%, respectively whereas imports from Mexico in June were almost thirteen times the value imported in March, jumping from USD 3.4 million to USD 44 million.

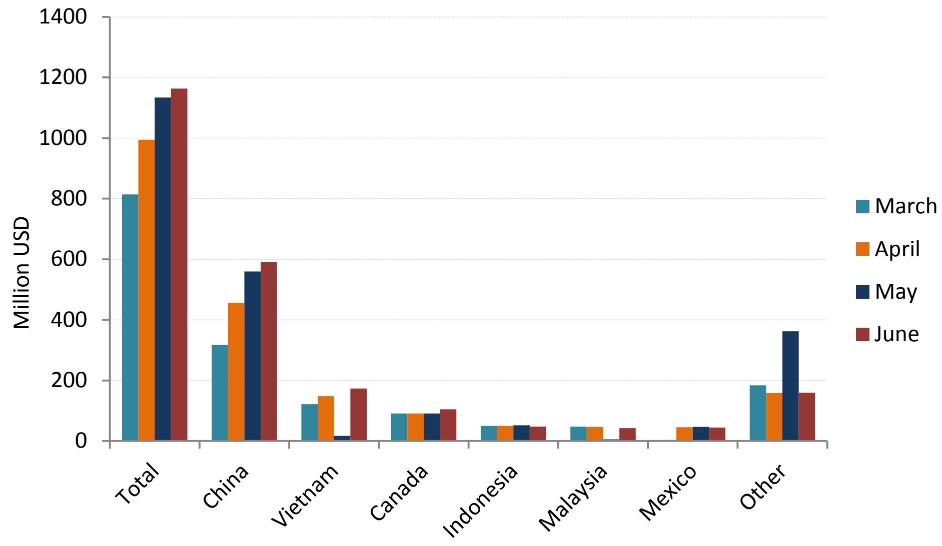

Figure 11 Import value of U.S. wooden furniture and major exporting countries from March to June 2013 (Global wood 2013b; ITTO 2013b)

Although Asian furniture market share has had some significant gains in certain segments of the market, most upholstered and some high-end wooden furniture are still manufactured in the U.S (Gazo 2013 citing Schuler 2007).

In 2012, the 25 largest furniture and bedding retailers in the U.S. growth in sales accounted together for 10.8% (ITTO 2013c). Wal-Mart is the second largest furniture and bedding retailer, for which sales in 2012 grew by 21.4% (USD 2.5 billion more). The largest furniture retailers in the U.S. include: Macy's, Wal-Mart, Target, Big Lots, IKEA, Williams-Sonoma, Restoration Hardware, Ashley Furniture Homestores, La-Z-Boy Furniture Galleries, Ethan Allen, Staples, Office Depot, Rooms To Go, Berkshire, Hathaway furniture division, Raymour & Flanigan, American Signature, Bob's Discount Furniture, Haverty's, Costco and Sam's Club.

It is also worth mentioning that online furniture retail is on the rise in North America and online furniture sales increased by 11% from 2011 to 2012 where online sales accounted for 9% of total furniture and bedding sales in 2012 (ITTO 2013d).

Mouldings

In 2011 the United States was amongst the world's major importers of mouldings (ITTO 2012). An increase in housing starts in the U.S. resulted in an increase in moulding imports, from USD 860 million in 2010 to USD 864 million in 2011, although according to the United Nations (2012) this value decreased from USD 0.8 billion to USD 0.7 billion. In 2011, China, Brazil and Malaysia were the major suppliers of hardwood mouldings to the United States (ITTO 2012). Mouldings demand is expected to increase in the medium term (to 2014) as a result of recovering housing markets and non-residential building construction. According to ITTO (2013b), from March to June 2013, the major suppliers of hardwood moulding to the U.S. have been China, accounting on average for 31.5% of monthly imports value (USD 4.7 per month), Brazil (26.3%, USD 4 million), Canada (10.4%, USD 1.53 million) and Malaysia (7.1%, USD 1.1. million). From March to June 2013, there has been a 33.1% increase in total hardwood mouldings imports, accounting for USD 4 million more. During the same period, imports from China increased 26% in value (USD 1 million more), as well as from Brazil

(63%, USD 1.8 million), Canada (3.8%, USD 56.9 thousand), Malaysia (6.1%, USD 475.5 thousand) and other countries (20%, 646.5 thousand). There was a peak in hardwood mouldings imports in May 2013 (Figure 12).

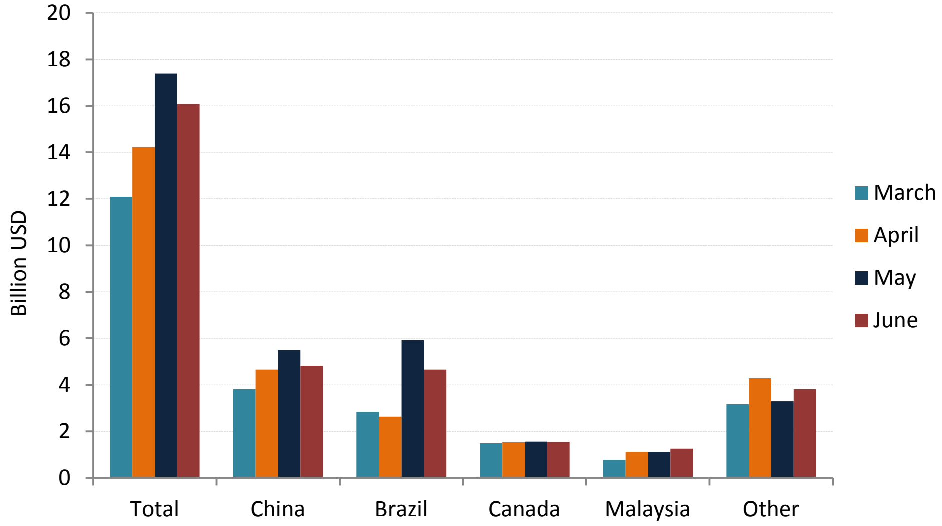

Figure 12 U.S. imports value of hardwood moulding and major suppliers from March to June 2013 (Global Wood 2013b; ITTO 2013b)

Flooring

U.S. imports of assembled flooring panels (engineered wood flooring, EWF) and hardwood strip flooring reached USD 14.7 million in November 2012, up 9% from the previous year (ITTO 2013b). From March to June 2013, the average imports value of hardwood flooring per month was USD 2.3 million whereas imports of EWF were on average USD 9 million worth, almost four times the imports of hardwood flooring (Global wood 2013b; ITTO 2013b). In June 2013 the U.S. imported a total of USD 2.3 million of hardwood flooring and USD 11 million of EWF. Imports of hardwood flooring have oscillated, but from March to June there was a general 10.6% increase, accounting for USD 219.4 thousand more. EWF total imports in June remained 51.3% higher than March, accounting for a USD 3.7 million increase over this period (Figure 13).

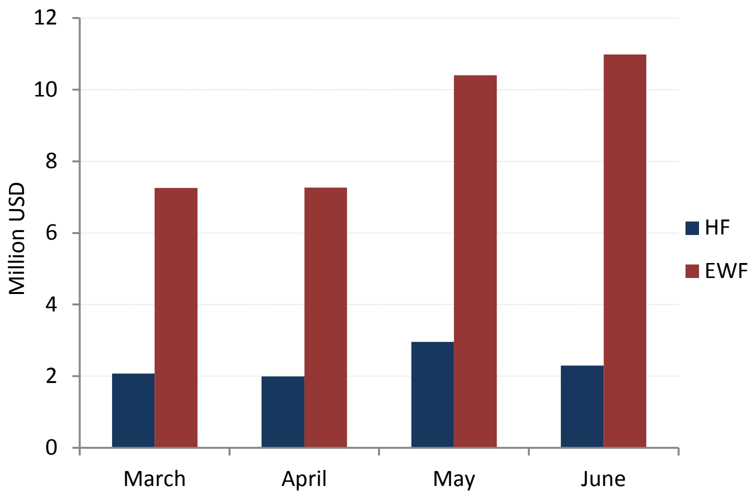

Figure 13 U.S. total imports values of hardwood flooring and engineered wood flooring from March to June 2013 in the (Global wood 2013b; ITTO 2013b)

Between March and June 2013, the major exporting countries of hardwood flooring to the U.S. were Indonesia, supplying on average USD 1 million which accounts for 45% of total imports, Malaysia with a 20.6% representativeness, China (10.2%) and Canada (4.1%) (Global wood 2013b; ITTO 2013b) (Figure 14). The biggest actors on hardwood flooring suppliance to the U.S. were Indonesia, Malaysia, China and Canada. Indonesia and Malaysia, particularly, may enjoy the benefits intrinsic to tropical hardwood species, which may explain their preference to simply export hardwood strips for flooring instead of engineered products. However, both countries may switch from a product to another, since Malaysian and Indonesian manufacturers, have already adopted finger-jointing and lamination technologies to produce engineered window scantlings (Oliver and Donkor 2010). Due to the expense and knowledge required, this type of technology has been slow to permeate the garden-furniture sector. But the situation is beginning to change, with the first laminated garden-furniture lines appearing at trade shows in 2009. Malaysian manufacturers are producing boards with cores comprising engineered wood manufactured from small-dimension wood and a 5-mm veneer facing in a range of species, both tropical and temperate.

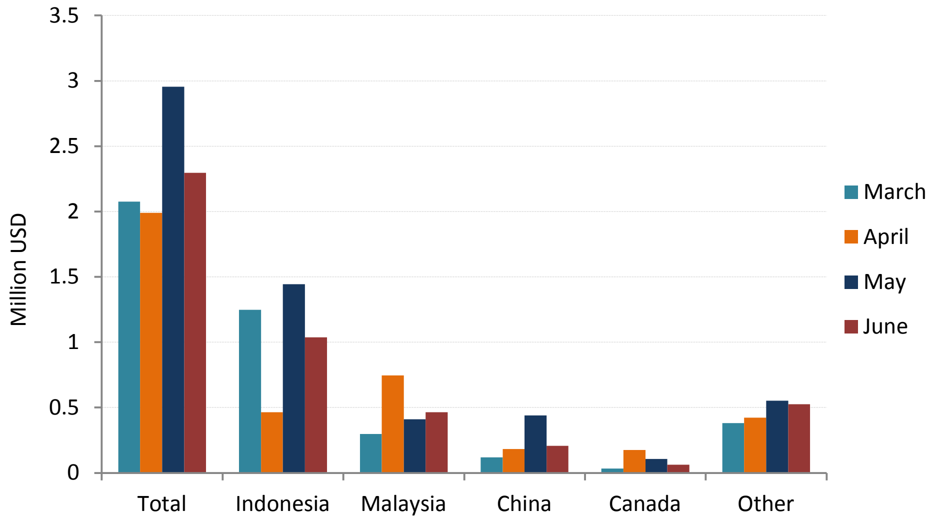

Figure 14 U.S. imports of hardwood strip flooring from March to June 2013 (Global Wood 2013b; ITTO 2013b)

The major exporting countries of EWF to the U.S. were China, supplying on average 53% per month (USD 4.7 million), Canada (25%, USD 2.2 million), Brazil (7.2%, USD 646.5 thousand) and Indonesia (4.4%, USD 398.4 thousand). Imports from China were up 74.7%, jumping from USD 3.3 million to USD 5.8 million from April to May, whilst imports from Brazil more than doubled (from USD 446.5 thousand to USD 972.7 billion) (Figure 15).

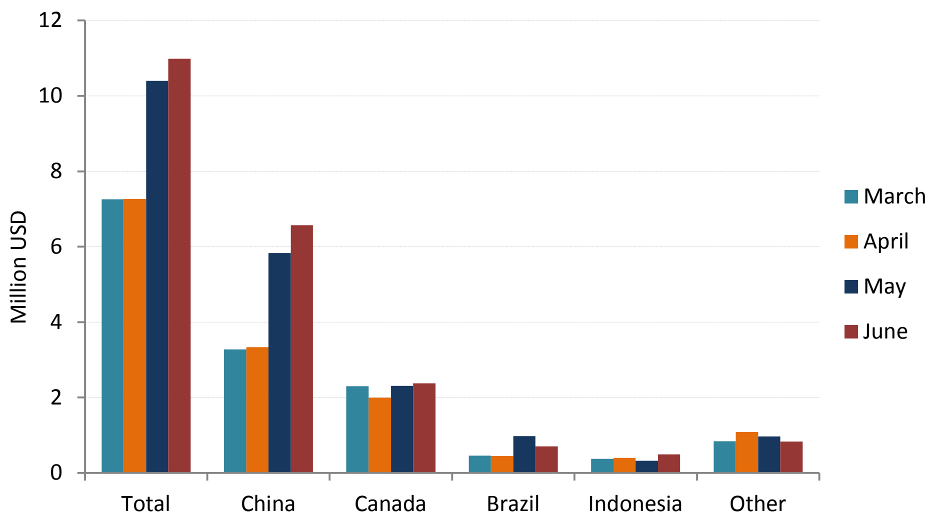

Figure 15 U.S. imports of EWF from March to June 2013 (Global Wood 2013b; ITTO 2013b)

Bench top[4]

Bench tops are primarily used in residential kitchens and bathrooms. In 2012, 79% of demand was in the residential market, mainly in single-family homes (ITTO 2013b). There is, therefore, a strict relation between housing starts and bench top demand. In 2012, the U.S. demand was 54 million m^2 (ITTO 2013b). A 5.1% yearly increase has been forecasted until 2017 due to the recovery of new home construction, as well as remodelling of older homes. The main material for bench tops is laminate, usually on composite wood, natural stone and engineered stone. The share of laminates in total demand declined from 60% ten years ago to about 30% in 2012 and this trend is expected to continue.

Wooden handicraft

In China, the State General Administration for Quality Supervision, Inspection and Quarantine has issued a new regulation on wooden handicraft products destined to the U.S. market (ITTO 2013c). The regulation requires that wooden handicraft producers must register a local entry-exit inspection and quarantine agencies. Information must be provided regarding production facilities, quarantine processes, quality control and raw material tracking controls. The entry-exit inspection and quarantine agencies have the power to suspend exports by businesses which don’t comply with the regulations.

Europe

The European door, flooring and furniture sectors continue to absorb reasonable volumes of sliced veneer from tropical countries, particularly in Africa. Sliced veneer forms an important component of value-adding wood industries in several tropical countries. Moreover, European furniture designers and manufacturers are influential in setting fashions for interiors worldwide, affecting the choice of all – wood and non-wood – materials (Oliver and Donkor 2010).

EU countries have traditionally been major destinations for tropical wood products, with the UK, France, the Netherlands, Italy, Germany, Portugal, Spain and Belgium importing substantial volumes of tropical sawnwood, veneers and plywood which are mostly remanufactured into high-value

[4] Countertop in North America

furniture, joinery and flooring products which are consumed in EU markets. A growing trend which had been evident before the crisis has been the decline in imports of tropical primary products and a rise in imports of finished products, primarily from Asian suppliers.

Tropical end use products are regarded as high-value "luxury" products, but also perceived to be associated with illegal logging and tropical deforestation. The global economic crisis, and continuing euro crisis, is reinforcing existing market trends.

Despite problems arising from the economic recession, the EU hardwood sawnwood industry had weathered the crisis better than most external suppliers with its share of the EU hardwood sawn timber market increasing from 66 to 74 % between 2006 and 2010 while the tropical hardwood market share declined from 18 to 12 %. Some of the reasons for this trend included a continuing strong fashion trend for European oak (ITTO 2011).

The EU supply is heavily import dependent with the vast majority of manufacturers concentrated in East Asia, notably Vietnam, China, Thailand and Indonesia (ITTO 2013f). This industry has traditionally favoured natural forest teak from Myanmar, but has diversified into a range of alternative, mainly plantation grown species, in recent years. Under strong pressure from European retailers, a significant proportion of wood used for manufacture of exterior wooden furniture sold into the EU is certified. The EU market for interior furniture is much less dependent on imports, although there has been rising import penetration particularly in the bedroom furniture and dining/living room sectors over the last decade. The use of reconstituted panels with veneers and, more recently, a broadening range of décor paper and other artificial surfaces have taken much share from solid wood in the interior furniture sector. Where solid wood is still used, oak is now strongly favoured. The use of tropical wood for manufacture of interior furniture in the EU is now limited and declining, probably much less than 5% of total EU consumption. The traditional "tropical redwood" look is not highly fashionable in Europe at the moment.

Furniture

The EU furniture market is dominated by European manufacturers and brands, which account for over 80 % of the value of furniture supplied to the EU. This reflects strong loyalty to European furniture brands in some EU countries, combined with strong technical, design and marketing skills, particularly in the Italian and German furniture sectors (ITTO 2012). These two countries account for over half of furniture produced in the EU. The dominance of European brands has been challenging for tropical wooden furniture exporters, along with the closer proximity of European producers to the end consumers. European furniture competitiveness generally relies on high level technical processing (machinery) and product development (design) combined to a lower contribution of labour in overall costs.

The UK, which is now the largest importer of furniture from outside the EU, has undergone significant structural change in its furniture industry and retailing in response to the recession. Smaller, independent retailers had suffered most while larger retailers had increased their dominance. These included department stores led by the Home Retail Group, Marks & Spencer and the John Lewis Partnership, furniture retailer chains such as IKEA and Furniture Village, together with kitchen specialists such as Magnet, Harvey Jones and Moben. Large DIY retailers such as B&Q and Wickes also began to play a more prominent role, particularly at the lower end of the garden furniture market. Furniture production in Eastern Europe has continued to fall in 2011, whereas production and exports from Asia to Europe, especially from China, have shown strong growth (United Nations 2012). France and Germany import mainly from European countries.

Germany was the major European importing country from 2010 to 2012, importing USD 4 billion in 2012 (Eurostat 2013). In 2012 France was the second major importer of wooden furniture in Europe (USD 3 billion), followed by the UK (USD 2.9 billion), Belgium (USD 1.5 billion) and Austria (USD 1.4 billion) (Table 1). From 2010 to 2012, Germany imports were steadily increased, as well as imports from France and Austria (Figure 16). Imports from the UK dropped significantly in 2011, recovering its previous import values in 2012. Imports from Belgium have steadily decreased from 2010 to 2012.

Table 1 European countries furniture import values from 2010 to 2012 and yearly increase/decrease rates (Eurostat 2013)

	Billion USD			Proportion (%)	
	2010	2011	2012	2011/2010	2012/2011
Germany	5.1	5,3	5.4	103.4	102
France	3.9	4.0	4.0	102.1	101.3
United Kingdom	3.8	3.4	3.8	89.1	112.0
Belgium	1.5	1.5	1.5	98.1	99.0
Austria	1.3	1.4	1.4	110.9	100.8

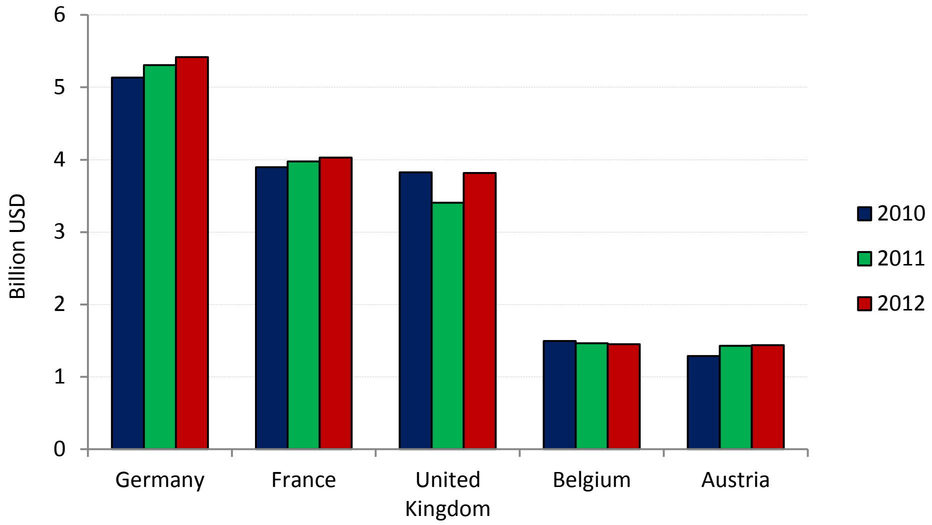

Figure 16 European major importing countries imports values of wooden furniture from 2010 to 2012 (Eurostat 2013)

Data on Austrian furniture imports, which includes materials others than wood and parts thereof as the major furniture related imported products, accounting for 32.8% of total imports in 2011 (Austrian furniture industry 2012). Living furniture accounted for 28.2%, whereas parts of furniture; kitchen furniture and office furniture accounted for 8.7%; 8.3% and 3.3%, respectively. All the nine major supplying countries of furniture to Austria were European countries.

Flooring and decking

Europe's wood-flooring sector has seen huge growth in recent years. According to the European Federation of the Parquet Industry (EFPI), European production grew from 2 million m^2 in 1987 to

100 million m^2 in 2007 (Oliver and Donkor 2010). More than 6.7 million m^2 of wood flooring were imported by Europe in 2010 (EFPI 2011). Imports of engineered wood flooring (EWF) amounted to 6.1 million m^2 compared to 0.6 million m^2 for solid flooring.

A similar trend could be observed for the European parquet production in 2012. Multilayer (engineered) production represented 78% followed by solid (20%) and mosaic (2%) (ORSIAD 2013). Considering the usage of wood species, oak accounted for almost 70% whereas tropical wood species showed some 6.2% representativeness. Ash and beech were the other two most commonly chosen species, with 6.5% and 6.1% representativeness, respectively. The increase in domination of oak is explained by consumers' preference for a species full of character and of high quality; a range of new staining and other treatment techniques (increased range of achievable looks); availability from domestic and North American sources; rising prices and declining availability of tropical hardwoods combined to environmental campaigns targeting tropical hardwoods (Global Wood 2013c).

There has been no improvement in European demand for tropical decking hardwoods in 2013 (ITTO 2013c). One reason explaining this situation was the poor weather which, after conditions were improved, demand for decking failed to pick up. The competition tropical hardwoods are suffering from wood-plastic composites, which demand is continuing to rise in 2013, also explains this situation.

The European flooring sector is going through a major period of change and is also a good indicator of what is happening in the wider European timber industry (ITTO 2013e). The flooring sector clearly demonstrates how technological innovation in other material sectors continues to put enormous pressure on wood's market position. In recent years, there has been a shift in focus from cut price, bargain-basement laminated wood flooring products to higher-quality products. According to the Association of European Producers of Laminate Flooring (EPLF), the wood look is still very dominant and there continues to be a strong fashion for longer and wider plank sizes. Oak continues to dominate wood decors with its almost inexhaustible decorative potential. Yet floors with the appearance of delicately-grained ash or elm, or rich softwoods such as spruce and larch, are also rapidly gaining in popularity. In general, demand for decor that resembles elegant wood varieties is on the rise. Dark colours have seen a slight decline, with the collections of European manufacturers instead presenting a varied spectrum of natural grey and beige tones – a trend that originated in the field of interior decor and which is now being adopted by the laminate flooring sector. A considerable amount of wood decor in the laminate sector no longer appears in its "natural" version, but rather with a discreet white or grey haze. Building on this technology, the rustic "used look" remains the key theme in European laminate flooring ranges. Europe's flooring manufacturers have recognised that their domestic markets are unlikely ever to recover the ground lost during the recession.

Market for tropical decking timbers in Europe during the 2013 summer season proved to be slow, with some reports suggesting demand down 20% or more compared to the previous year (ITTO 2013g). Weather conditions in Europe were relatively good this year and there was a reasonable level of activity in the decking sector as a whole. The decking market in the UK was particularly good, boosted by rising business confidence and better weather over the summer months. However tropical hardwood has suffered a further loss of share in the decking sector this year both to other wood species and to wood plastic composites.

Joinery and carpentry

European joinery and carpentry market requires detailed knowledge of the product, regular contact with the building industry and responsiveness to consumer concerns which makes elsewhere products penetration more difficult (ITTO 2012). Innovations in plastics, metal and surfacing technologies have been reducing the market share for manufacturers of wooden doors, windows and stair parts in Europe. A complex range of quality and environmental standards have also been recently established in Europe. These standards include stringent requirements for legal and sustainable timber, including tropical timber woodwork and joinery products, following the EU Timber Regulation coming into effect this year (2013). There is no expectation of upturn in the EU consumption of joinery and carpentry, considering the continuing weak construction sector activity. Overall, the domination of Europe's joinery sector by domestic joinery manufacturers leaves low expectations for imports rising.

In 2012, the major importers of joinery and carpentry were Germany and Italy, followed by the UK, France and Austria (Eurostat 2013). From 2010 to 2012, imports from both Germany and Italy increased on an average rate of 12% (Table 2). France and Austria slightly increased its joinery and carpentry imports whereas imports from the UK decreased (Figure 17). From 2011 to 2012 the only country which notably increased its imports value was the UK (up 6.6%). Imports from Italy showed a significant 13.9% decrease whereas changes in the other countries' change in import values remained lower than 2%.

Table 2 European countries joinery and carpentry import values and yearly increase/decrease proportions (Eurostat 2013)

	Million USD			Proportion (%)	
	2010	2011	2012	2011/2010	2012/2011
Germany	810.1	906.8	911.0	111.9	100.5
United Kingdom	774.7	748.8	798.3	96.7	106.6
Italy	663.8	745.3	626.9	112.3	84.1
France	599.1	623.4	614.8	104.0	98.6
Austria	298.4	307.7	311.4	103.1	101.2

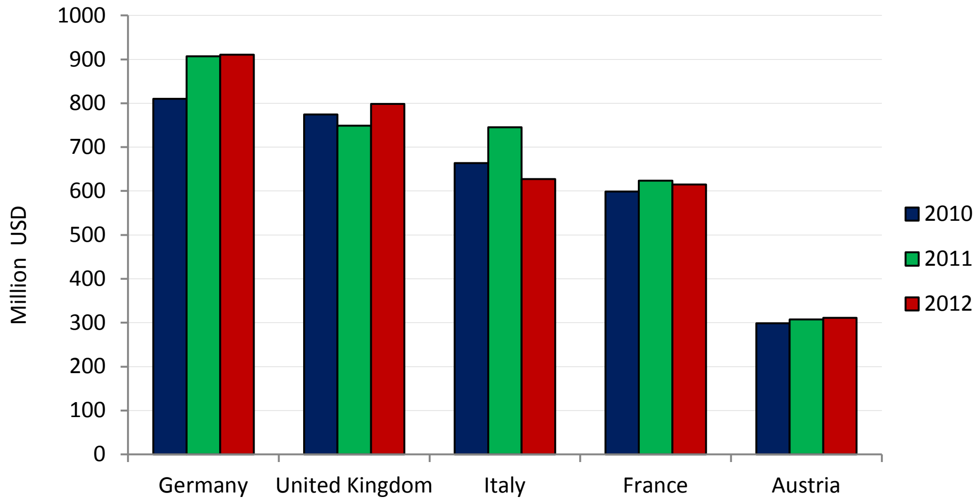

Figure 17 European countries' joinery and carpentry import values from 2010 to 2012 (Eurostat 2013)

The European window sector is becoming a more challenging one for sales of tropical hardwoods. Even as wood-framed windows are beginning to reclaim market share lost to PVC earlier this decade, most of those gains are expected to be achieved by softwoods and EWPs manufactured in northern European countries. Nevertheless, a small but significant number of manufacturers and end-users still favour the look of tropical hardwoods and appreciate their qualities of durability and stability (Oliver and Donkor 2010). This could be favourable to eucalyptus species which has a few advantages over other materials (Table 3).

Table 3 Window-frame options in the European market (Oliver and Donkor 2010)

Material	Strengths	Weaknesses
Eucalypt	Fast growing, rapidly renewable compared to other hardwoods Good workability Readily available as FSC-certified Significantly cheaper than other tropical hardwood	Low familiarity with working and performance properties in the EU market Lack of information on durability Perceived high carbon footprint

Other VAWPs

In 2011, Europe was the most important region for the imports of other SPWPs, with aggregate imports valued at USD 6.5 billion (an increase of 21% compared to previous year) which is two times the amount imported by the United States[5] (ITTO 2012). In 2011, an increase was registered for

[5] Two categories were regrouped as per ITTO (2012): wrapping/packaging material and products for domestic /decorative use. Figures and tables in the present document were elaborated based on data provided by Eurostat (2013).

most European importing countries, such as Germany; France; Italy and the Netherlands. In 2011, Germany imports of VAWPs increased 19% to USD 1.7 billion.

From 2010 to 2012, Germany was the major importing country of wooden wrapping and packing material in Europe (Eurostat 2013). France was second followed by Belgium, Italy and the Netherlands (Figure 18, Table 4).

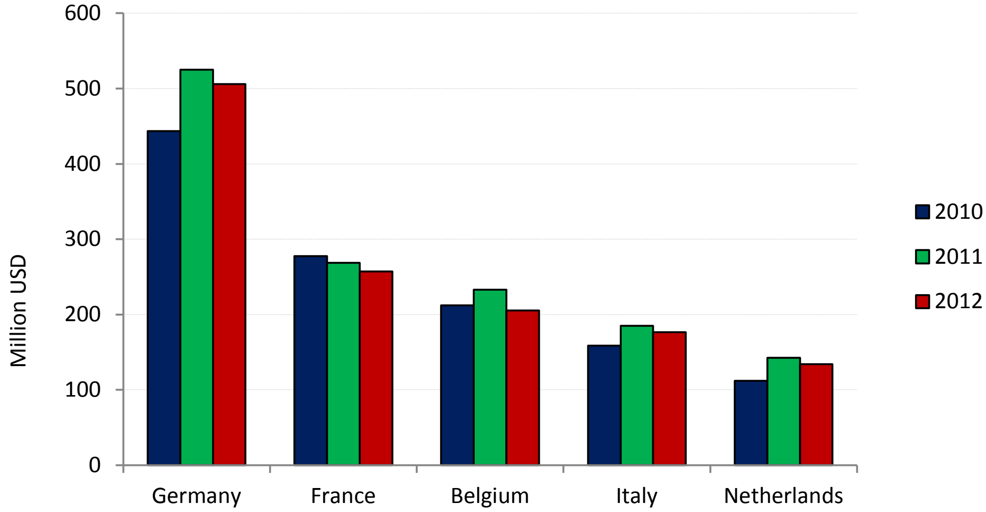

Figure 18 European wooden wrapping and packing material major importing countries and imports values in 2011 and 2012 (Eurostat 2013)

Table 4 European major importing countries of wooden wrapping and packing material import values yearly increase/decrease proportions (Eurostat 2013)

	Million USD			Proportion	
	2010	2011	2012	2011/2010	2012/2011
Germany	443.4	524.8	506.0	118.4	96.4
France	277.6	268.5	257.0	96.7	95.7
Italy	158.7	185.2	176.6	116.6	95.4
Belgium	212.2	232.9	205.4	109.8	88.2
Netherlands	112.2	142.6	134.3	127.0	94.2

According to Eurostat (2013), Germany was the major importing country of other VAWPs from 2010 to 2012, followed by France, the UK, Italy and the Netherlands. Germany, France and Italy import values represented an increase of 7.4%, 1.6% and 2.2% over 2010 values, respectively (Mouldings

Mouldings imports by EU countries were up 20% by value in 2011 (ITTO 2012). From 2010 to 2011 Germany increased its moulding imports by 13% and France increased by 20% (United Nations 2012). Imports by the UK declined 10%.

Table 5). The UK and the Netherlands, though, had their lowest import values in 2011, down 5.2% and 7.3% compared to 2010. Both countries, though, recovered their imports in value in 2012 (Figure 19).

Mouldings

Mouldings imports by EU countries were up 20% by value in 2011 (ITTO 2012). From 2010 to 2011 Germany increased its moulding imports by 13% and France increased by 20% (United Nations 2012). Imports by the UK declined 10%.

Table 5 European major importing countries of other VAWPs import values and comparison from 2010 to 2012 (Eurostat 2013)

	Million USD			Proportion (%)	
	2010	2011	2012	2011/2010	2012/2011
Germany	819.9	880.9	871.1	107.4	98.9
France	427.3	433.9	429.1	101.6	98.9
United Kingdom	307.8	292.0	305.8	94.8	104.7
Italy	209.3	213.9	205.4	102.2	96.0
Netherlands	164.6	152.6	175.5	92.7	115.0

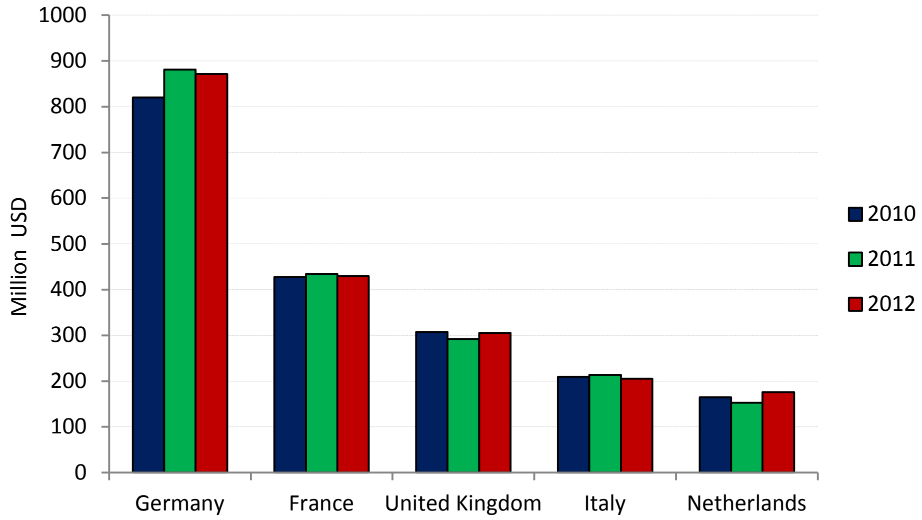

Figure 19 European other VAWPs major importing countries and imports values in 2011 and 2012 (Eurostat 2013)

Major European VAWPs importing countries profiles

Germany

In 2011 Germany overtook the UK and became the largest European joinery and carpentry importing country, achieving a value equivalent to USD 932 million, 20% higher than in the previous year (ITTO 2012). Germany, in 2011, was also the world's second largest importer of wood products for domestic/decorative use and wooden wrapping and packing material, which accounted together for USD 1.7 billion, up 19% compared to 2010.

The import of SPWPs, which includes softwood and hardwood mouldings; window frames; door and frames; flooring and furniture, have increased 20% from 2007 to 2011 (European Timber Trade Federation 2011a). Furniture is the single largest imported product amongst the value added wooden products, remaining an average rate of 86.5% of total value-added wooden products imports over the five years considered in the graph. Flooring, the second most imported type of product, represented 5.8% and the others represented 2.4% or less (Figure 20).

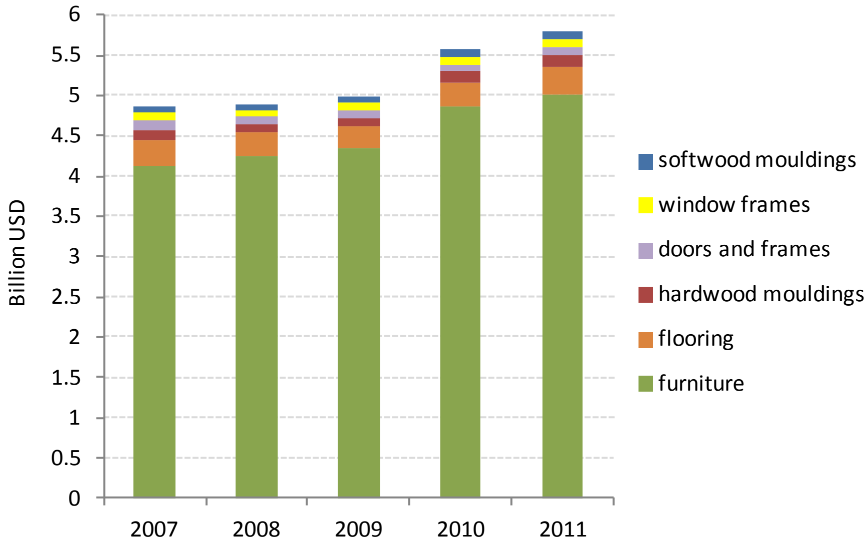

Figure 20 Germany SPWPs imports values from 2007 to 2011 (European Timber Trade Federation 2011a)

From 2007 to 2011, imports of wooden furniture in Germany have steadily grown, accounting for a 21.3% increase in total (European Timber Trade Federation 2011a). In 2008 there was a 2.6% increase compared to 2007, accounting for USD 4.24 billion in total. In 2009 the rate of increase remained at 2.9% (USD 120.7 million more), followed by a further 11.5% increase in 2010 (USD 499 million more). In 2011, wooden furniture imports were up 3.2%, resulting in an import value of USD 5 billion (Figure 21).

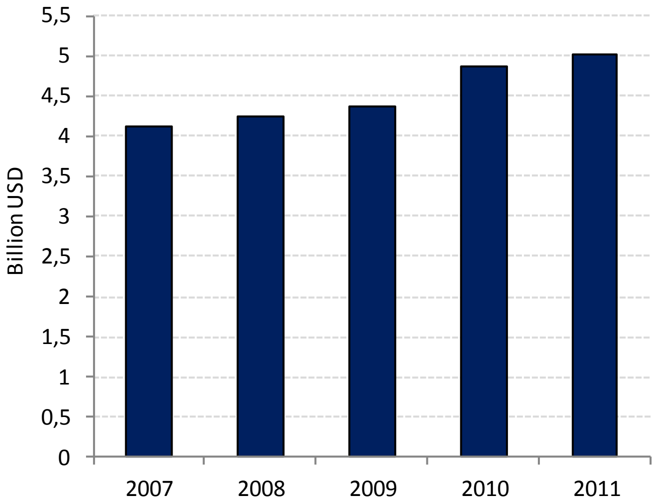

Figure 21 Germany furniture imports values from 2007 to 2011 (European Timber Trade Federation 2011a)

Poland was the major supplier of wooden furniture to Germany (in m^3) in 2011, accounting for 33.1% of total imports (European Timber Trade Federation 2011a). Italy was the second (14.5%), followed by China (9.7%), Denmark (5.6%) and Sweden (4.2%) (Table 6). Germany is one of the major markets for Italian wooden furniture (ITTO 2012). By comparing the amount of wooden furniture imported from countries outside Europe and the amount imported from inside Europe (ExtraEU/IntraEU ratio) it is possible to recognize German costumers' preferences regarding their foreign wooden products suppliers. In 2011, the ExtraEU/IntraEU ratio for wooden furniture imports was 20.8%, confirming German preference for European suppliers.

Table 6 Germany VAWPs imports and main suppliers in 2011 (European Timber Trade Federation 2011a)

Product	Total	Main suppliers and respective quantities					ExtraEU/IntraEU ratio (%)*
Wooden furniture (x1000 m^3)		Poland	Italy	China	Denmark	Sweden	
	2655.6	878.4	384.9	258	149.4	111.1	20.82
Softwood moulding (x1000 m^3)		Sweden	Finland	Austria	Poland	Russia	
	116.1	26.1	25.8	15.3	12.3	7.6	11.8
Hardwood mouldings (x1000 m^3)		Indonesia	Brazil	Austria	Netherlands	Poland	
	112.8	44.5	16	9.9	7.7	5.1	68.7
Window frames (x1000 m^3)		Denmark	Poland	Hungary	Austria	Latvia	
	22.1	7.1	6.2	4.1	3.2	0.3	1.8
Doors and frames (x1000 m^3)		Denmark	Czech Republic	Austria	Romania	Poland	
	26.2	8.4	2.9	2.2	2.1	2.1	4.2
Flooring (million m^2)		Austria	Poland	China	Lithuania	Belgium	
	15.7	3.9	2.7	1.7	1.7	0.7	29.29

*ExtraEU/IntraEU ratio results from the division of the quantity of products imported from countries outside Europe (Extra-EU) the quantity from countries inside Europe (Intra-EU)

From 2007 to 2008 the imports of hardwood mouldings dropped 17.6% in value, accounting for USD 22.9 million less. In 2009 the value of imports remained the same as in 2008 (USD 107.4 million) and in 2010 there was a 25.9% increase (USD 27 million more). In 2011, Germany imports of hardwood moulding were up 10.3% (USD 14 million more), remaining USD 149.2 million in total (Figure 22). In 2011, Indonesia was a major supplier of hardwood mouldings to Germany, accounting for 39.5% of total in volume. Brazil supplied Germany with a 14.2% representativeness, followed by Austria (8.8%), Netherlands (6.8%) and Poland (4.5%). The ExtraEU/IntraEU ratio was 68.7%, due to the tropical countries accessibility to tropical hardwood species (Table 6).

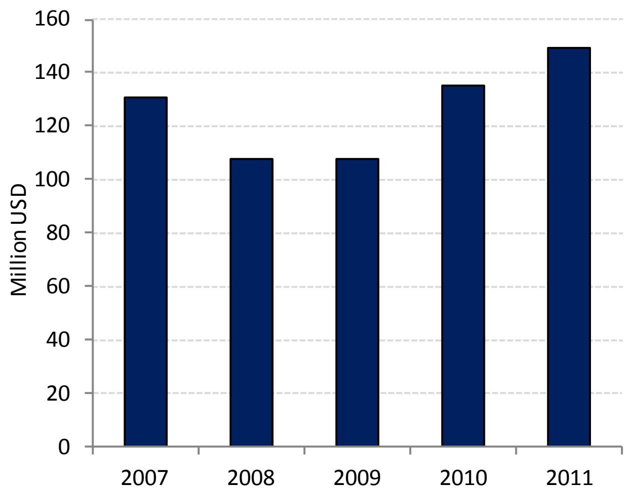

Figure 22 Germany hardwood mouldings imports values from 2007 to 2011 (European Timber Trade Federation 2011a)

Doors and frames value of imports rates have been decreasing since 2007 (European Timber Trade Federation 2011a). In 2007 doors and frames imports accounted for USD 121.5 million. In 2008, there was a 21.4% decrease in this value, accounting for USD 26 million less imported products. In 2009 the value of imports remained almost equal (0.7% lower) followed by a 5.6% drop in 2010 (USD 5.3 million less). In 2011, Germany imported USD 88.4 million in doors and frames, 1.3% less than in 2010 (USD 1.2 million) (Figure 23). Denmark was the major supplier of doors and frames to Germany, accounting for 32.1% of total imports in volume. Poland was the second major supplier (28%), followed by Hungary (18.6%), Austria (14.5%) and Latvia (1.4%). The ExtraEU/IntraEU ratio was 4.2%, demonstrating a small share for doors and frames from non-European countries (Table 6).

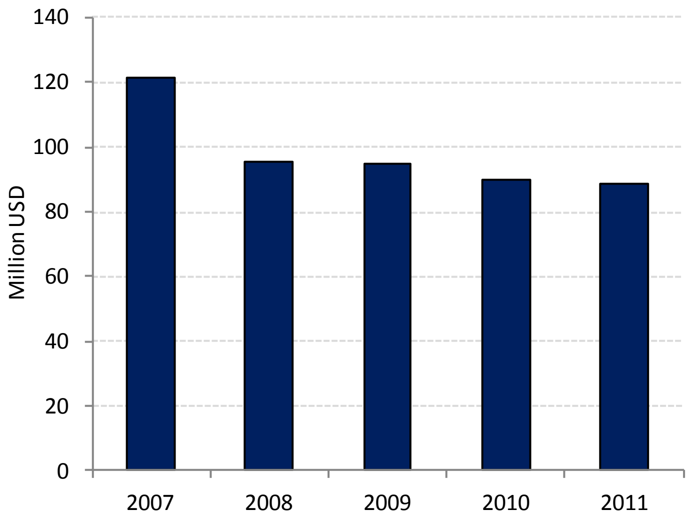

Figure 23 Germany doors and frames imports values from 2007 to 2011 (European Timber Trade Federation 2011a)

Window frames imports oscillated from 2007 to 2011. In 2007 Germany imported USD 90 million of wooden window frames (European Timber Trade Federation 2011a). In 2008 this value dropped to USD 86.9 million (3.7% less). In 2009 there was a 17.5% increase, accounting for USD 15.2 million of total imports. In 2010, imports were down 8.6% (USD 8.8 million less) and in 2011 Germany imported 13.3% more, accounting for USD 105.6 million in total (Figure 24). Denmark was the major supplier of wooden window frames to Germany, accounting for 32.1% in total. Czech Republic was the second (11.1%), followed by Austria (8.4%), Romania (8%) and Poland (8%). The ExtraEU/IntraEU ratio for window frames was 1.8%, indicating an insignificant participation of countries from outside Europe in these products suppliance (Table 6).

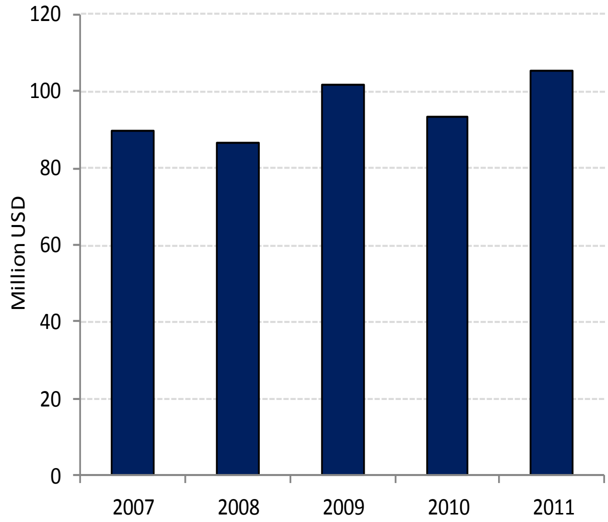

Figure 24 Germany window frames imports values from 2007 to 2011 (European Timber Trade Federation 2011a)

In 2007, Germany imports of flooring were USD 308.1 million worth (European Timber Trade Federation 2011a). In 2008 this value was down 3.3%, accounting for USD 298.1 million. Imports of flooring in 2009 were valued at 252.4 million, down 15.3% from 2008 value. In 2010 there was a 23% increase in flooring imports value (to USD 310.2 million) and in 2011 it was 13% higher, remaining USD 350.6 million (Figure 25). Austria was the main supplier of flooring (24.8%), followed by Poland (17.2%), China (10.8%), Lithuania (10.8%) and Belgium (4.5%). The ExtraEU/IntraEU ratio for flooring imports in 2011 remained at 29.3% due to shipments from China (Table 6).

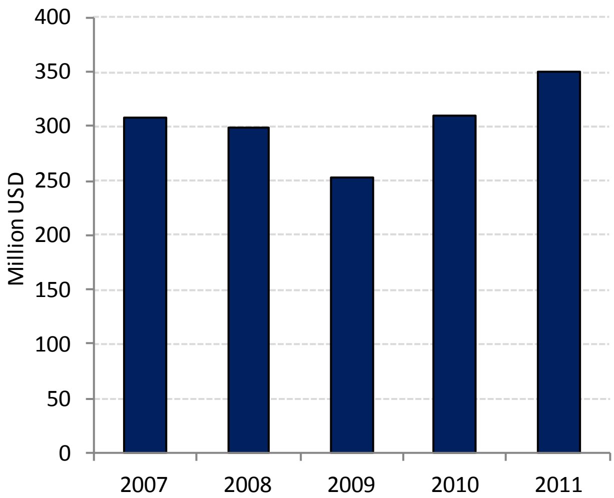

Figure 25 Germany flooring imports values from 2007 to 2011 (European Timber Trade Federation 2011a)

France

During the period between 2007 and 2011, France has seen little change in imports values of wooden furniture (United Nations 2012). Its imported furniture has been mainly provided by European countries. France import values for both 2010 and 2011 remained at USD 4.6 billion, where furniture parts imports accounted for USD 0.8 billion in 2011. France world's main supplying regions of furniture in 2011 were Europe (76.8%), Asia (21.1%), Latina America (1%), North America

(0.4%) and others (0.5%). France, along with Germany, was the world's major importer of Italian furniture. The imports values of joinery and carpentry also remained the same during both 2010 and 2011 remained at around USD 0.6 billion. France joinery and carpentry main supplier regions in 2011 were Europe, accounting for 79.7% of total imports, Asia (15.4%), Latin America (3.6%), North America (0.6%) and others. France imports of mouldings in 2011 were almost 20% higher in 2011 than in 2010. In 2011 the main moulding supplying regions were Europe (57.2%), Latin America (27.5%), Asia (12.6%), North America (0.6%) and others (2.1%).

In 2008 the import value of VAWPs (i.e. furniture, doors and frames, window frames, flooring, hardwood and softwood mouldings) was USD 4.26 billion worth, 2.3% over the 2007 import value (USD 4.25 billion) (European Timber Trade Federation 2011b). In 2009 the import value dropped 12% (USD 3.84 billion), followed by a 10.4% increase in 2010 (USD 4.24 billion). In 2011 there was a 4% decrease, accounting for USD 4.07 billion. From 2007 to 2011, furniture represented on a yearly average 86.7% of the imported VAWPs imports. Flooring imports represented 4.2%, hardwood mouldings 2.6%, doors and frames 2.5%, window frames 2.2% and softwood mouldings 1.7% (Figure 26).

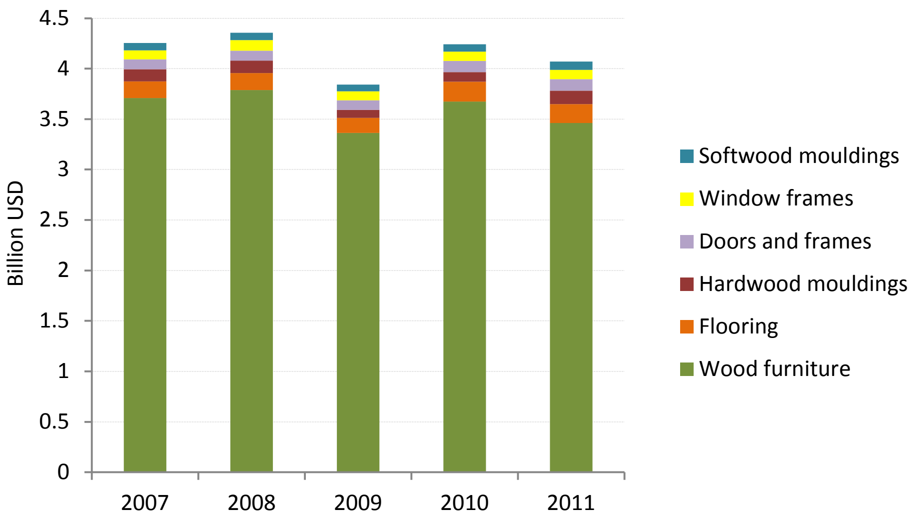

Figure 26 France VAWPs imports values from 2007 to 2011 (European Timber Trade Federation 2011b)

Furniture imports in 2007 were USD 3.71 billion worth (European Timber Trade Federation 2011b). Imports in 2008 were valued at USD 3.79 billion, up 2.1% over 2007 value. In 2009 there was an 11.2% decrease in furniture imports accounting for USD 3.36, followed by a 9.2% increase in 2010 (to USD 3.67 billion). In 2011, France imported USD 3.46 billion, accounting for 5.6% decrease over 2010 value (Figure 27). VAWPs and furniture imports values has similar oscillation rates over the 2007 to 2011 periods due to the representativeness wooden furniture imports have amongst the other VAWPs considered in this session. The United Nations (2012) values presented for wooden furniture imports accounted furniture parts, which probably explains the different furniture imports values presented by European Timber Trade Federation (2011b). In 2011 China was the main supplier of wooden furniture to France, accounting for 18.2% of France imports. Germany was the second major supplier of wooden furniture (14.5%), followed by Poland (13.2%), Italy (11.7%) and Belgium (6.6%). The ExtraEU/IntraEU ratio was 43.9% (Table 7).

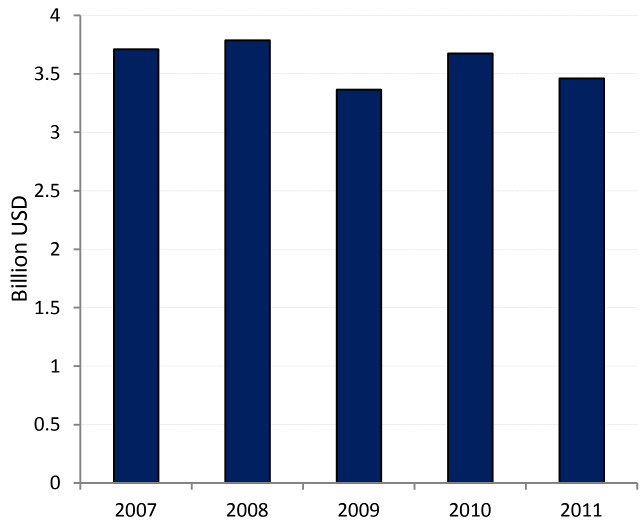

Figure 27 France furniture imports values from 2007 to 2011 (European Timber Trade Federation 2011b)

Table 7 France VAWPs imports and main suppliers in 2011 (European Timber Trade Federation 2011b)

Product	Total	Main suppliers and respective imported quantities					Extra-EU / Intra-EU ratio (%)*
Wooden furniture (x1000 m^3)	1470.8	China 268	Germany 213	Poland 193.7	Italy 171.8	Belgium 96.4	43.9
Softwood moulding (x1000 m^3)	102.7	Germany 51.2	Poland 29.8	Belgium 6.3	New Zealand 1.6	Luxembourg 1.5	5.2
Hardwood mouldings (x1000 m^3)	107	Brazil 44.8	Belgium 24.8	Germany 7	China 5.1	Indonesia 3.7	142
Window frames (x1000 m^3)	28	Poland 17.8	Denmark 2.4	Belgium 2.1	Romania 1.3	Germany 0.9	6.5
Doors and frames (x1000 m^3)	57.2	China 11.7	Brazil 8.6	Malaysia 6.7	Estonia 6.1	Belgium 4.2	118.3
Flooring (million m^2)	6.9	China 1.9	Belgium 1.1	Brazil 0.5	Germany 0.5	Poland 0.5	86.5

*EXTRAEU/INTRAEU RATIO RESULTS FROM THE DIVISION OF THE QUANTITY OF PRODUCTS IMPORTED FROM COUNTRIES OUTSIDE EUROPE (EXTRA-EU) THE QUANTITY FROM COUNTRIES INSIDE EUROPE (INTRA-EU)

France in 2007 imported USD 117.8 million on hardwood mouldings (European Timber Trade Federation 2011b). In 2008 there was a 5.1% increase in hardwood mouldings imports accounting for USD 123.9 million. In 2009 there was a significant 36.2% decrease in imports which achieving a final import value of USD 79.1 million. Hardwood moulding imports recovered in 2010, when there was a 22.7% increase, to USD 97 million. The recovery was held to 2011, when a 36.8% increase over the 2010 imports value resulted in USD 132.7 million (Figure 28). The major exporters of hardwood mouldings to France were Brazil, which products accounted in quantity (m^3) for 41.9% out of the total amount of imports, Belgium (23.2%), Germany (6.5%), China (4.8%) and Indonesia (3.5%). The ExtraEU/IntraEU ratio was 142%, due to the predominance of suppliers from tropical countries (Table 7).

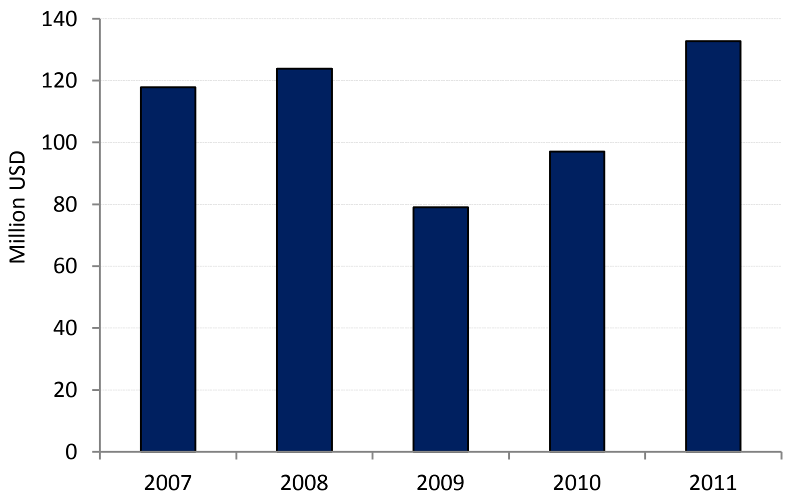

Figure 28 France hardwood mouldings imports values from 2007 to 2011 (European Timber Trade Federation 2011b)

Imports of doors and frames in 2007 were USD 99.4 million worth, remaining the same in 2008 (European Timber Trade Federation 2011b). In 2009 there was a 6.5% drop (to USD 93.2 million) followed by a 19.5% increase in 2010. Doors and frames imports in 2011 were USD 114.9 million worth in 2011, up 3.2% over 2010 value (Figure 29). China was the main supplier in 2011, accounting in quantity (m^3) for 20.4% of France total imports. Brazil was the second (15%) followed by Malaysia (11.7%), Estonia and Belgium (7.3%). The ExtraEU/IntraEU ratio was 118.3%, since China, Brazil and Malaysia are the main suppliers (Table 7).

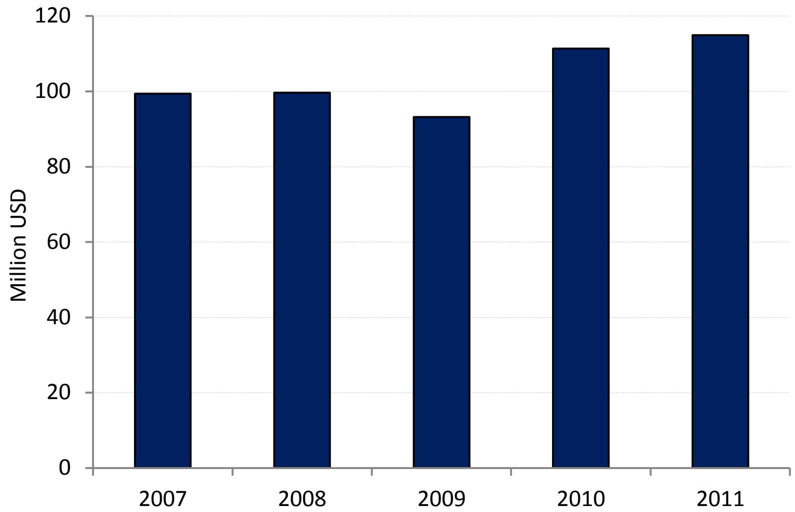

Figure 29 France doors and frames imports values from 2007 to 2011 (European Timber Trade Federation 2011b)

In 2007 France imported USD 88 million of window frames (European Timber Trade Federation 2011b). In 2008 imports were up 18.3%, accounting for USD 104.1 million in total. Imports were down 12.3% in 2009 (to USD 91.3 million) and slightly up in 2010 (to USD 92.4 million). In 2011 window frames imports were USD 90.8 million worth, accounting for a 1.8% over 2010 value (Figure 30). Poland was the main exporting country of window frames to France, accounting in quantity (m^3) for 63.4% of total imports in 2011. The second major supplier was Denmark (8.6%), followed by

Belgium (7.5%), Romania (4.6%) and Germany (3.2%). The ExtraEU/IntraEU ratio was 6.5%, pointing out a low significance of non-European suppliers (Table 7).

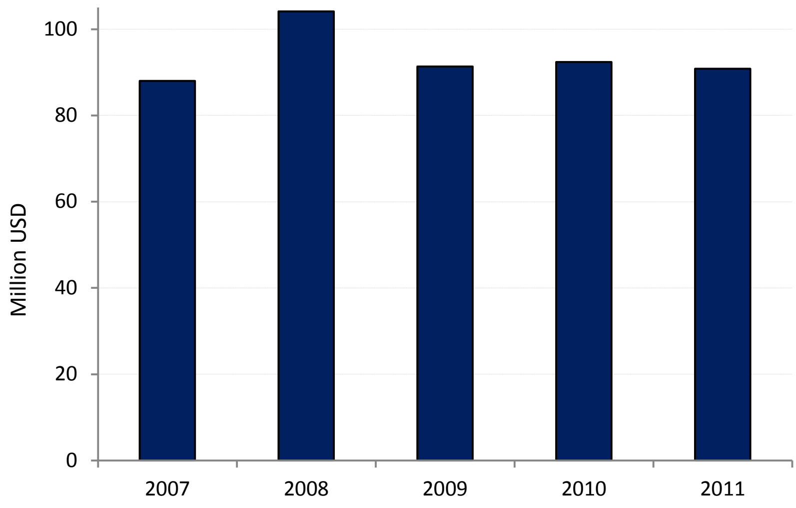

Figure 30 France window frames imports values from 2007 to 2011 (European Timber Trade Federation 2011b)

In 2007, France imported USD 164.7 million in flooring (European Timber Trade Federation 2011b). In 2008 there was a 2.7% increase (USD 169.2 million) followed by a 12.1% decrease in 2009, accounting for USD 148.8 million). In 2010, France import of flooring was valued at USD 194.5 million, up 30.7% over 2009 value. In 2011 imports decreased 3.9%, accounting for USD 187 million (Figure 31). The main supplier of flooring to France was China, supplying 27.5% of the total flooring imported quantity (m^2). Belgium was the second major supplier of flooring (15.9%) followed by Brazil (7.2%), Germany (7.2%) and Poland (7.2%). The ExtraEU/IntraEU ratio was 86.5%, which shows a significant acceptance of products from overseas (Table 7).

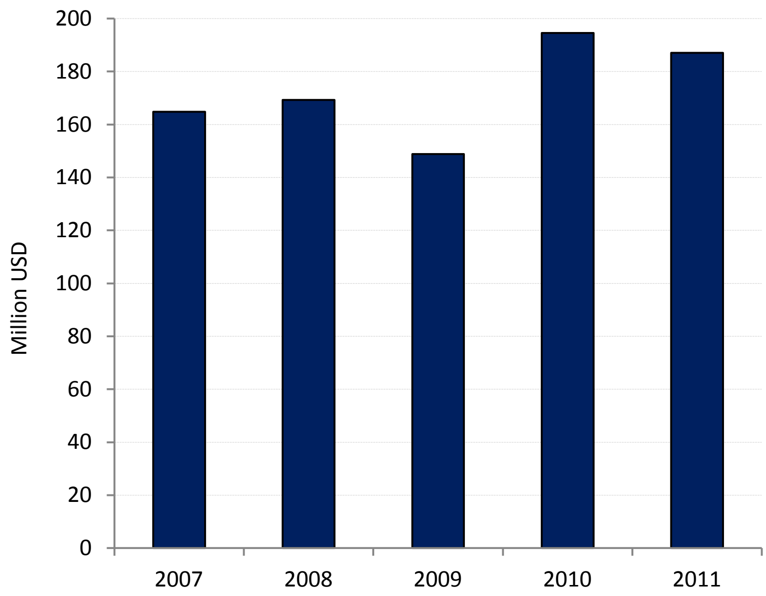

Figure 31 France flooring imports values from 2007 to 2011 (European Timber Trade Federation 2011b)

United Kingdom

In 2011, the UK remained to be one of the five major importing countries of VAWPs (ITTO 2012). The UK furniture import value in 2010 was USD 3.5 billion. In 2011 it was the world's fourth biggest importing country of wooden furniture and parts, when imports were USD 3.2 billion worth, down 8.6% compared to 2010 value. In 2011, the UK was also one of the major markets for Italian and Chinese furniture. Alike the United Stated, the UK rely heavily on Asian countries for wooden furniture suppliance (United Nations 2012). In 2011, the UK imported 10% less mouldings (profiled wood) than in 2010.

If considered furniture; softwood and hardwood mouldings; doors and frames; windows and frames and flooring as VAWPs, furniture was the most imported product, representing on an annual average 81.6% (USD 3.8 billion) of total VAWPs imports along the period ranging from 2007 to 2011 (European Timber Trade Federation 2011c). Doors and frames were the second most imported products (7.1%, USD 331 million) followed by flooring (4.8%, 224.4 million), window frames (3.7%, 174 million), softwood mouldings (1.4%, USD 65.5 million) and hardwood mouldings (1.3%, USD 60.1 million). The UK VAWPs imports value in 2007 was USD 5.7 billion. In 2008 this value went 13.2% down (to USD 5 billion) and in 2009 it went 20.8% further down (to USD 3.9 billion). In 2010 imports value rose 13.2% and reached USD 4.5 billion. In 2011 imports value dropped 8.8% to USD 4.1 billion (Figure 32).

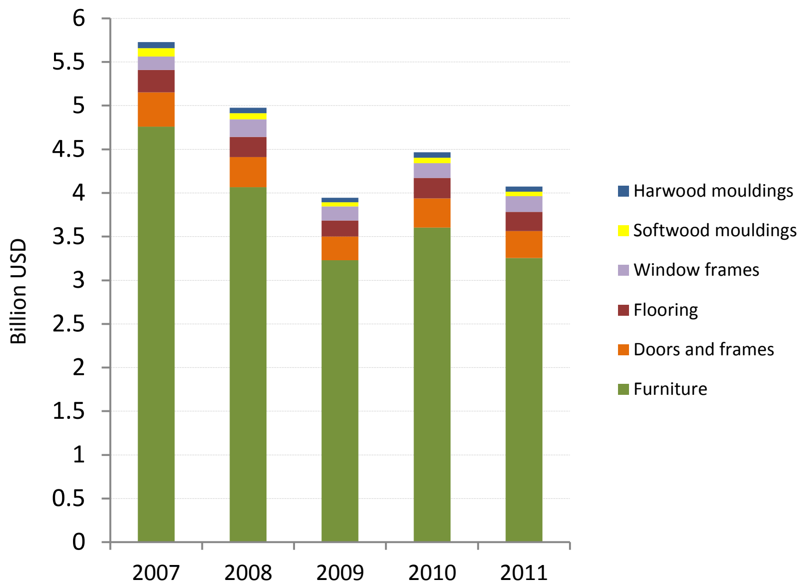

Figure 32 UK VAWPs imports values from 2007 to 2011 (European Timber Trade Federation 2011c)

In 2007, furniture imports were USD 4.8 billion worth (European Timber Trade Federation 2011c). In 2008 imports were valued at USD 4.1 billion, down 14.6% over 2007 value. In 2009 furniture imports went further 20.6% down to USD 3.2 billion. In 2010 there was a 11.6% to USD 3.6 billion and in 2011 furniture imports fell again (9.7%) to USD 3.3 billion (Figure 33). China was the major furniture supplier in quantity (m^3) to the UK, accounting in 2011 for 31.5% of total imports. Italy was the second (11.6%) followed by Poland (10.4%), Sweden (6.5%) and Vietnam (6.1%). The ExtraEU/IntraEU ratio was 113%, which points non-European countries dominance over European countries as exporting countries (Table 8).

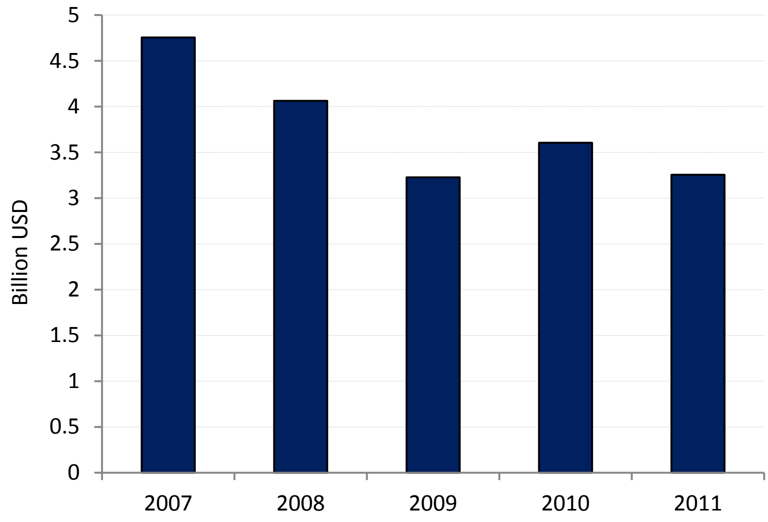

Figure 33 UK furniture imports values from 2007 to 2011 (European Timber Trade Federation 2011c)

Table 8 UK VAWPs imports and main suppliers in 2011 (European Timber Trade Federation 2011c)

Product	Total	Main suppliers and respective exported quantities					ExtraEU/IntraEU (%)
		China	Italy	Poland	Sweden	Vietnam	
Wooden furniture (1000 m3)	1494.6	470.8	173.7	155.4	96.8	91	113
		Sweden	Germany	Finland	Lithuana	Canada	
Softwood mouldings (1000 m3)	90.9	53.3	7.8	7.5	5.7	3	9.5
		China	Malaysia	Indonesia	Germany	Brazil	
Hardwood mouldings (1000 m3)	33.2	16.3	4	2.2	2.1	1.8	906
		Poland	Denmark	Germany	Norway	Lithuania	
Window frames (1000 m3)	23.7	11.4	3.7	2.3	1.8	1.5	12
		Indonesia	China	Portugal	Malaysia	Irish Republic	
Doors and frames (1000 m3)	155.4	30.7	20.7	18.6	18.3	13.9	180
		China	Sweden	Poland	Indonesia	Denmark	
Flooring (million m2)	10.4	6.6	0.7	0.6	0.5	0.3	300

*EXTRAEU/INTRAEU RATIO RESULTS FROM THE DIVISION OF THE QUANTITY OF PRODUCTS IMPORTED FROM COUNTRIES OUTSIDE EUROPE (EXTRA-EU) THE QUANTITY FROM COUNTRIES INSIDE EUROPE (INTRA-EU)

Hardwood mouldings imports in 2007 were USD 70.1 million worth (European Timber Trade Federation 2011c). In 2008 there was a 10.5% drop over the 2007 value to USD 62.7 million and a further 8.1% decrease in 2009 to USD 51.4 million. In 2010 hardwood mouldings imports were USD 60 million worth, accounting for a 16.7% increase. In 2011 imports value fell again to USD 56.5 million, accounting for a 5.8% drop (Figure 34). China was the major hardwood moulding exporting country to the UK, accounting 49.1% of total imports in quantity (m^3) in 2011. Malaysia was the second major supplier (12%) followed by Indonesia (6.6%), Germany (6.3%) and Brazil (5.4%). The UK hardwood mouldings ExtraEU /IntraEU rate in 2011 was 906%, which means imports from non-European suppliers was nine times higher than imports from European countries (Table 8).

In 2007 doors and frames imports were USD 395.5 million worth (European Timber Trade Federation 2011c). In 2008 imports value decreased 12% to USD 347.9 million and there was a further 22% decrease to USD 271.5 million in 2009. In 2010 doors and frames imports were valued USD 334.4

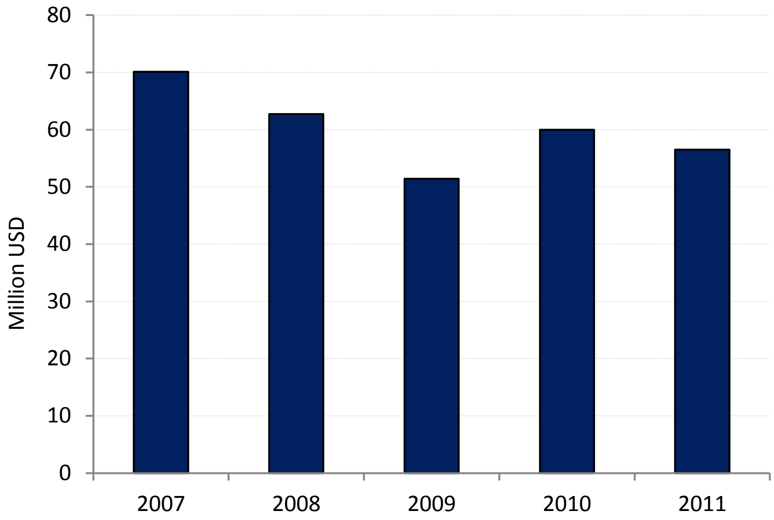

Figure 34 UK hardwood mouldings imports values from 2007 to 2011 (European Timber Trade Federation 2011c)

million, accounting for a 23.2% increase. In 2011 imports fell again to USD 305.8 million, down 8.6% over the 2010 value (Figure 35). Indonesia was the major door and frames supplier to the UK in 2011, accounting for 19.8% of total imported quantity (m^3). China was the second major exporting country (13.3%) followed by Portugal (12%), Malaysia (11.8%) and Irish Republic (8.9%). The ExtraEU /IntraEU rate for UK doors and frames imports was 180% which highlights a major preference for door and frames suppliers from tropical countries (Table 8).

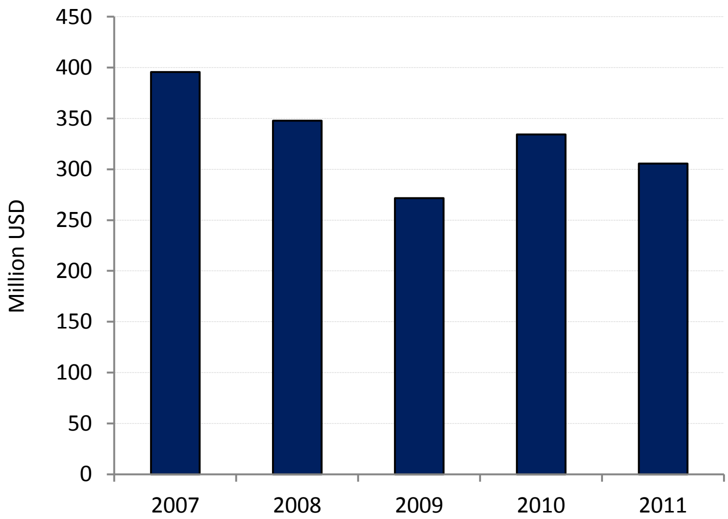

Figure 35 UK doors and frames imports values from 2007 to 2011 (European Timber Trade Federation 2011c)

Window frames imports in 2007 were valued at USD 153.9 million (European Timber Trade Federation 2011c). In 2008 there was a 31.2% increase which led to USD 202 million in value followed by a 19.8% drop to USD 162.1 million in 2009. In 2010 imports increased 5.8% to 171.5 million and in 2011 there was a further 5.1% increase to USD 180.3 million (Figure 36). Poland was the main window frames exporting country to the UK, accounting for 48.1% in quantity (m^3) in 2011. Denmark was the second major supplier (15.6%) followed by Germany (9.7%), Norway (7.6%) and Lithuania (6.3%). Window frames ExtraEU /IntraEU rate was 12%, pointing out European dominance in the supply chain (Table 8). Imports of windows and doors are relatively small, since most of window frames used in the UK are produced by domestic industries (European Timber Trade Federation 2011c). This fact indicates the continuing importance of local knowledge, customer support and short lead times in the joinery sector. Window frames suppliers were exclusively European countries.

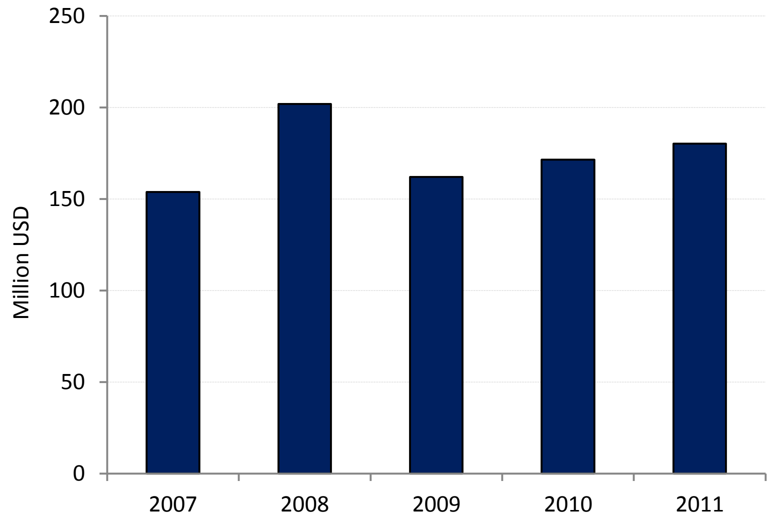

Figure 36 UK window frames imports values from 2007 to 2011 (European Timber Trade Federation 2011c)

Flooring imports in 2007 were USD 253.8 million worth. There was a 9.1% decrease in 2008 to USD 230.8 million and a further 20.3% drop in 2009 to USD 153.8 million. In 2010 flooring imports were up 26.6% to USD 232.7 million followed by a 5.1% drop to USD 220.9 million (Figure 37). China was the major flooring supplier to the UK, accounting for 63.4% in quantity (m^2) of total imports. Sweden was the second main exporting country (6.7%) followed by Poland (5.8%), Indonesia (4.8%) and Denmark (2.9%). Flooring ExtraEU /IntraEU rate was 300%, pointing out the both Chinese and Indonesian significant participation along the UK flooring supply chain (Table 8).

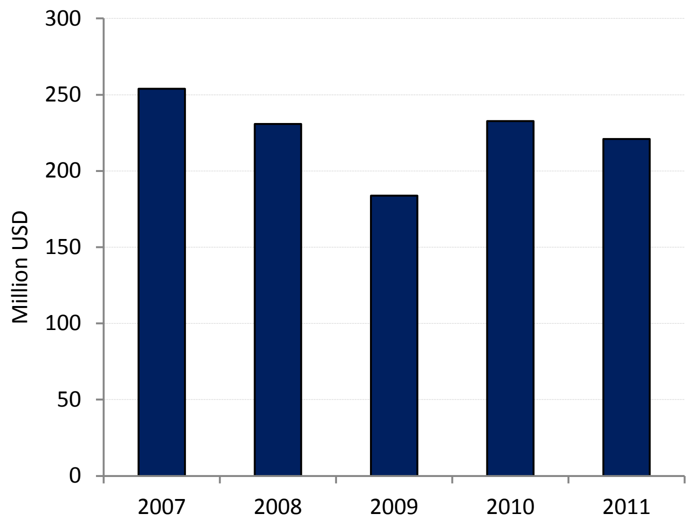

Figure 37 UK flooring imports values from 2007 to 2011 (European Timber Trade Federation 2011c)

Major Asian VAWPs importing countries profiles

China

Over the past two decades, China has become the most important country importer and exporter of wood-based products, including wood products of tropical origin. Urbanisation and income growth have been, and will continue to drive China's growth in housing demand. Housing demand has stimulated consumption of furniture and joinery, as well as infrastructure development, another major wood products end use. Growth in furniture consumption has driven demand for veneers, sawnwood and wood-based panels, including plywood (Forest Trends 2011). Urbanisation has been contributing to the growth in consumer spending by increasing the affordability and availability of goods, including furniture and value-added wood-based products. By 2020, some 850 million people, representing about 60 % of the total population, are expected to be living in urban areas, up from about 650 million in 2010 (Maplesden et al. 2013).

Future opportunities for market development are now seen as heavily concentrated in regions such as China (ITTO 2013e). US market research organisation Catalina Research estimate that total flooring sales throughout China amounted to 3.9 billion m^2 in 2011 and forecast that demand for new floors will increase by 149 to 177 million m^2 per year at least until 2025. In addition to the growth of China's overall market, European manufacturers reckon that there is significant potential for high-end laminated products to capture more market share. According to Catalina Research, in 2011 laminate flooring made up just 4% of China's market (156 million m^2), with solid wood and bamboo floors accounting for 4% (156 million m^2).

Japan

Since 2007, Japan has been the fifth most important wooden furniture importing country with imports valued at USD 1.5 billion in 2011, 40% less than in 2010 (USD 2.5 billion) (United Nations 2012). Despite the decrease in furniture imports, furniture parts imports value remained the same in at USD 0.5 billion both in 2010 and 2011, jumping from a 20% representativeness in total furniture and parts imports in 2010 to 33% in 2011. According to ITTO (2012) though, in 2011 Japan imports of wooden furniture were USD 2.3 billion worth, a virtually unchanged value since 2000 (ITTO 2012). Japan and China were the main demand drivers for Philippines' joinery and carpentry of wood exports, which from 2010 to 2011 grew 70%, from USD 1.0 billion to USD 1.7 billion (ITTO 2012).

Bedroom, kitchen and office furniture total imports in Japan represented USD 170 million, USD 99.3 million and USD 21.6 million in 2012, respectively (Global Wood 2013a). The total value of imported kitchen furniture accounted for 58.4% of the total amount of imported bedroom furniture, while imports of office furniture accounted for 10.7%. The major suppliers of bedroom furniture were China, accounting for 55.7%, Vietnam (19.7%) and Malaysia (10.6%) (Figure 38). Thailand and Indonesia were the other important bedroom furniture suppliers, accounting for 3.9% and 3.1% respectively. These mentioned Asian suppliers provided together 93% of Japan total imported bedroom furniture. Imports from Europe accounted for 6% of the total where Poland (1.5%), Italy (1.2%) and Sweden (0.8%) were the major suppliers. In 2012, imports of bedroom furniture were up 14.8% from 2011 value (USD 148.1 million). In July 2013, Japan total value of bedroom furniture imports was USD 18.4 million worth (ITTO 2013c). The largest suppliers of bedroom furniture were China, accounting for 56.3%, followed by Vietnam (21.9%), Malaysia (7.4%), Thailand (4.4%) and Indonesia (1.8%). Imports of kitchen furniture were valued at USD 11.6 million.

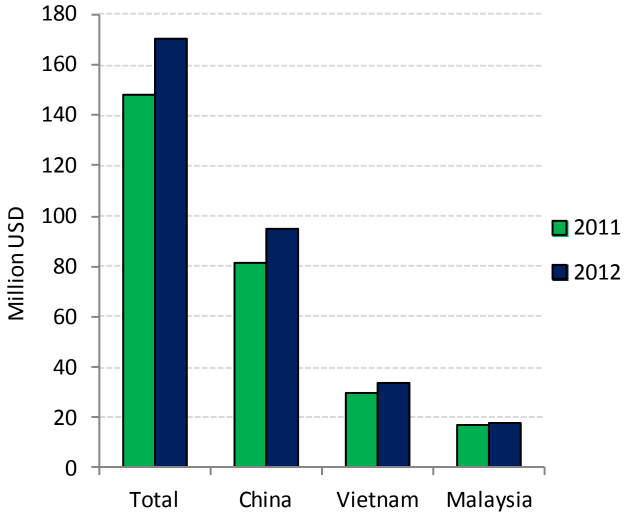

Figure 38 Bedroom wooden furniture imports value and major supplying countries in 2011 and 2012 for Japan (Global Wood 2013a)

Kitchen furniture imports in 2011 and 2012 remained similar with a total average value of USD 99 million. Main supplying countries in 2012 included Vietnam (33.6%), China (19.4%) and Indonesia (17.6%) (Figure 39). Other supplying countries for kitchen furniture to Japan include Philippines (16.3%) and Malaysia (2.8%). Imports of bedroom furniture from these Asian countries mentioned above accounted for 90% of total imports of bedroom furniture. The major European suppliers were Germany (3.1%) and Italy (1.5%). Both Vietnam and China value of kitchen furniture exports to Japan increased at 33.6% and 19.4% rates, respectively, from 2011 to 2012. Imports from Philippines decreased 17.6%. In July 2013, the major kitchen furniture suppliers to Japan were Vietnam, accounting for 34.7% in value, Indonesia (18.2%), Philippines (18%), China (15.7%) and Malaysia (2.8%). When compared 2012 to July 2013 data, both Indonesia and Philippines overtook China and became the second and third major suppliers of kitchen furniture.

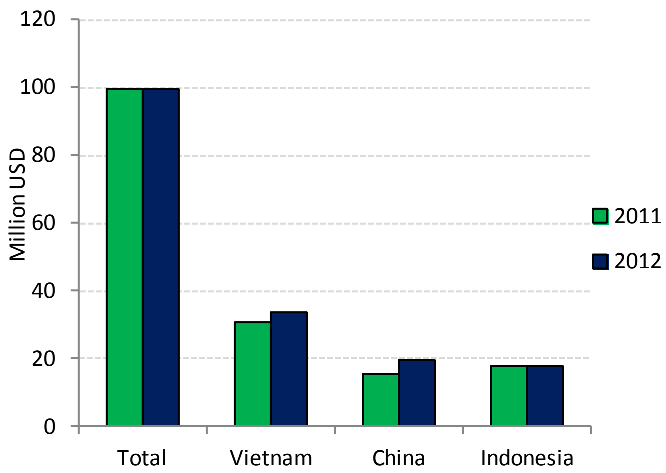

Figure 39 Japan kitchen wooden furniture imports value and major exporting countries in 2011 and 2012 (Global Wood 2013a)

Imports of wooden office furniture in 2012 were down 15.8% compared to 2011. China, Indonesia and Malaysia were the major suppliers and accounted for 45.3%, 7.7% and 6.2% in 2012, respectively (Figure 40). Germany was the main European supplier of office furniture, accounting for 5.4% of total in 2012, followed by Denmark (3.4%). Imports from China increased 46.3%, whereas imports from Indonesia were 18.5% down and from Malaysia were down 13.8%. According to ITTO (2013c) imports value of office furniture in July 2013 was USD 2.1 million worth and the major exporting countries were China, accounting for 30.9% in value, followed by Poland (15%), Portugal (12.3%), Malaysia (9.1%), Indonesia (6.2%), Germany (5.1%) and Italy (5%). There was a notable difference between the major suppliers of office furniture during presented by Global wood (2013a) over the 2011 and 2012 and by ITTO (2013c) for July 2013.

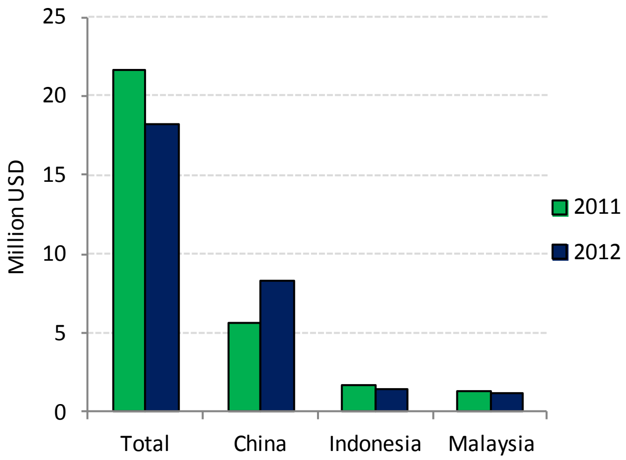

Figure 40 Japan office wooden furniture value of imports and main exporting countries in 2011 and 2012 (Global Wood 2013a)

Not only bedroom furniture was the most imported type of furniture but it was also the only type of furniture that had an increase on the value of imports from 2011 to 2012. For Japan, China was amongst the three major suppliers of office, kitchen and bedroom furniture. Vietnam, Malaysia, Indonesia, Philippines and Thailand were amongst the major wooden furniture exporting countries to Japan. Germany, Italy, Poland, Sweden and Denmark remained the major European exporting countries of the mentioned types of furniture.

Japan has been relying on Asian countries as the main exporting countries of the three discussed types of furniture. Bedroom and kitchen furniture imports, particularly, relied on Asian countries for over 90% of these types of furniture suppliance. The office furniture market share is more diverse and also the less representative amongst the three discussed ones. Japan is the third largest market for British Columbia wood products in volume, which sees opportunities in "green building", multi-unit residential housing and elderly care facilities (Forest Innovation Investment 2013).

Australia VAWPs importing country profile

Furniture and furniture related products imports to Australia in 2007 were USD 733.8 million worth (ABARES 2012). Bedroom furniture was the main imported type of furniture in 2007, with imports valued at 183.4 million. In 2010, bedroom furniture imports value was USD 153.3 million (up 13.1% from 2007). China, Indonesia, Malaysia, Vietnam and Poland were the main supplying countries. Office furniture was the second major type of imported furniture, with imports valued at USD 44 in 2007 and USD 54.1 million in 2010, accounting for a 10.1% increase. China, Malaysia, Poland, Indonesia and Vietnam were the major suppliers of office furniture. Kitchen furniture imports value ranged from USD 22 million in 2007 to USD 36.1 million, increasing 63.9% over the period. The main supplying countries were China, Germany, Indonesia, Vietnam and Slovakia. Furniture parts imports were USD 110.1 million worth in 2007, increasing 40% over the years to 2010 (to USD 153.3 million). The main suppliers of furniture parts to Australia were China, Italy, Sweden, Austria and Hungary (Figure 41).

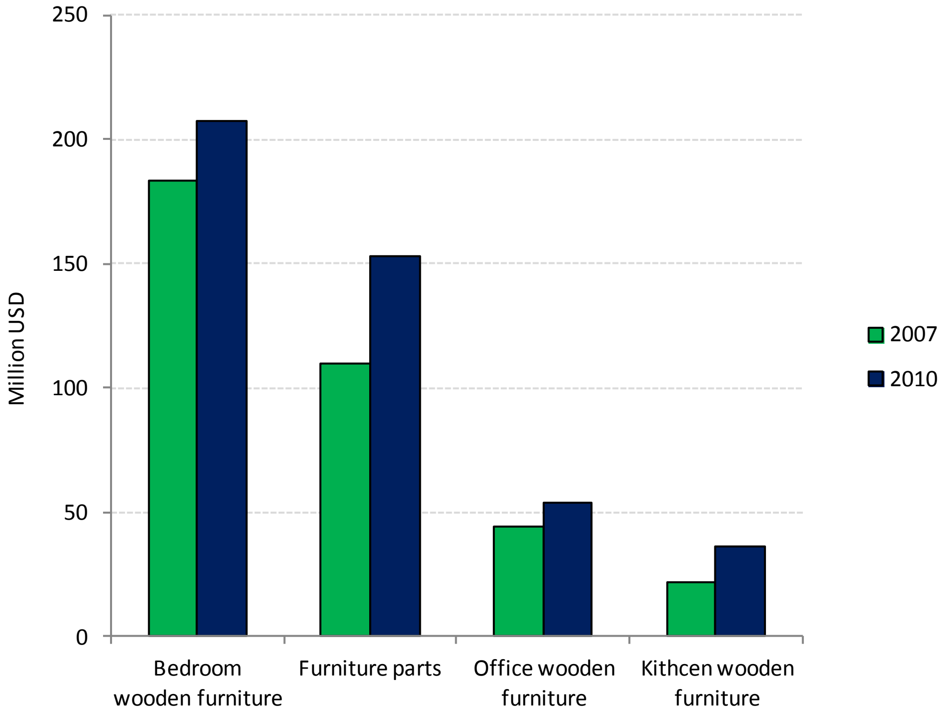

Figure 41 Furniture and furniture related products imports value in 2007 and 2010 (ABARES 2012)

Upholstered and non-upholstered wooden frame seats imports value in 2007 remained USD 422.4 million and USD 58.9 million, respectively (ABARES 2012). Upholstered wooden frame seats imports in 2010 increased 4.7% compared to 2007 and the major suppliers were China, Malaysia, Indonesia, Italy and Vietnam. Non-upholstered wooden frame seats imports value in 2010 was down 5.2% to USD 55.9 million and the major supplying countries to Australia were China, Indonesia, Vietnam, Thailand and Indonesia (Figure 42).

There was a total of USD 762 million worth of solid wood products imported into Australia in the between 2010 and 2011 of which USD 396 million (52%) were used by the residential home construction sector (Halkett 2012). A growth in household products and packaging and industrial products imports marked that period. The total value of sawnwood imports fell from 2011 to 2012 to USD 423.1 million tons, a 5.3% over the previous year values. This is mainly a result of a fall in coniferous rough sawn timber imports, commonly used for landscaping and housing construction in Australia.

In 2007, moulding imports in Australia were valued at USD 244.4 million (ABARES 2012). In 2010, imports were valued at USD 270.7 million, accounting for a 10.8% increase over the period. The major suppliers of mouldings to Australia in 2010 were Indonesia, New Zealand, Malaysia, China and Chile. Joinery and doors imports, including cellular wood panels, assembled flooring panels, shingles

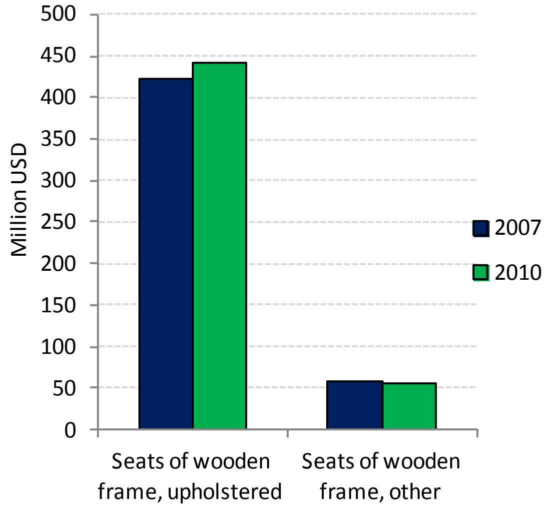

Figure 42 Upholstered and non-upholstered wooden frame import values in 2007 and 2010 (ABARES 2012)

and shakes, were USD 139.6 million worth in 2007. In 2010 imports went up 57% in value to USD 219.2 The United States, China, Indonesia, Malaysia and New Zealand were the major joinery and doors suppliers in 2010. Imports of veneer sheets in 2007 were USD 34.9 million worth. In 2010 there was a 63.1% decrease in imports to USD 12.9 million. Malaysia, Italy, China, the United States and the Philippines were the major veneer sheets supplying countries to Australia in 2010. Marquetry furniture imports value was up 10.8% over the period between 2007 and 2010, from USD 23.3 million to USD 25.8 million. Wooden frames, table and kitchenware, packing cases and tool and handles imports value over the 2007-11 period was on average USD 12.3 million (Figure 43). For these last wooden products no information was provided on major suppliers.

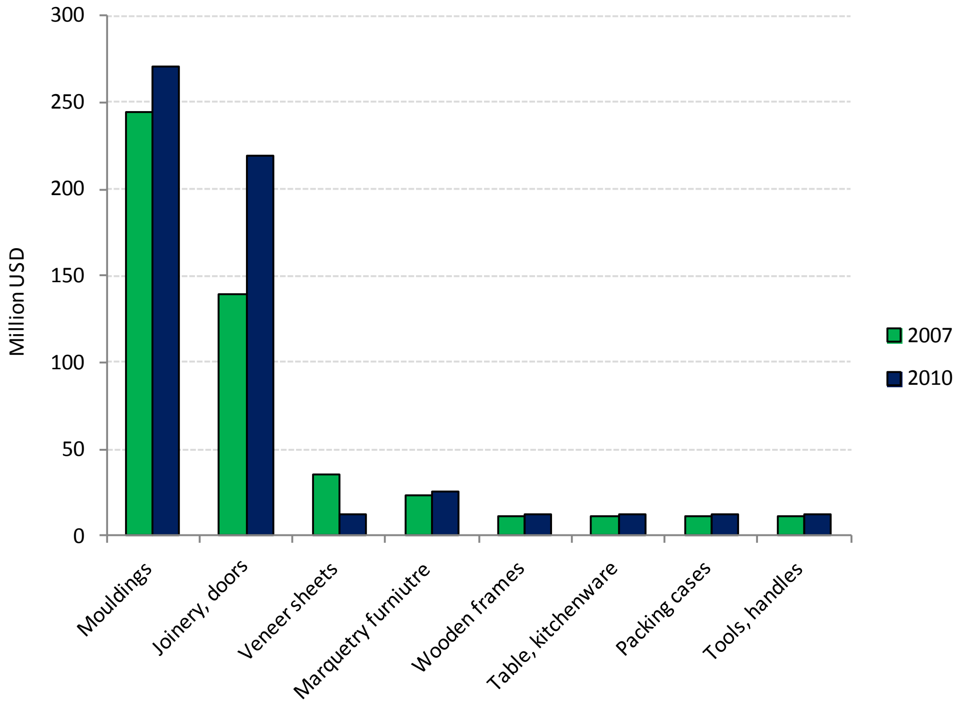

Figure 43 Wood articles imports value in 2007 and 2010 (ABARES 2012)

Over the 2007 to 2012 period, mouldings were the most wooden articles imported products, followed by carpentry, wood products for domestic/decorative use, doors, assembled parquet flooring panels and packing cases (Figure 44) (ABARES 2013). All the products, except for assembled parquet flooring panels, increased its imports in value from 2011 to 2012. The greatest increase in this period was on packing cases imports, up 20.4%. Assembled parquet flooring panels imports value was down 15.4% over the same period. From 2009 to 2010 there was a sharp increase on carpentry imports (up 41.7%) which from 2007 to 2012 more than doubled (Table 9).

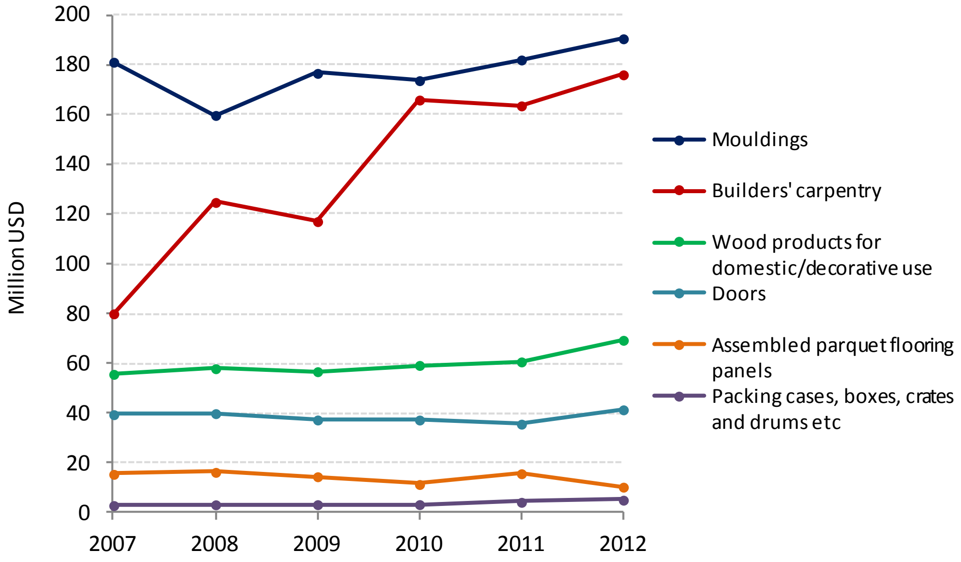

Figure 44 Australian wooden article imports from 2007 to 2012 (ABARES 2013)

Table 9 Australian wooden article import values in 2007 and in 2012 (ABARES 2013)

	Million USD			Proportion 2012/2011	Proportion 2012/2007
	2007	2011	2012		
Mouldings	181.2	182.1	190.7	104.7	105.2
Carpentry (excluding doors)	80.0	163.7	176.2	107.6	220.2
Wood products for domestic/decorative use	55.7	60.7	69.4	114.3	124.6
Doors	39.5	35.6	41.4	116.2	104.9
Parquet flooring panels assembled	15.4	15.7	10.3	65.5	66.6
Packing cases, boxes, crates and drums etc	2.9	4.2	5.1	120.4	174.7

Over the 2007 to 2012 period, Australian imports of doors from Indonesia and Malaysia represented on average 41.1% and 36.8%, respectively, in value per year (ABARES 2013). There was a 14.7% increase in carved door imports from 2007 to 2012. In 2008 imports were valued at 3.7 million, decreasing 11.1% compared to 2007 imports value (USD 4.2 million). In 2009, carved door imports were USD 3.2 million worth, accounting for a further 12.2% decrease over 2008 value. In 2010, though, Australia imported 30.4% more carved doors than in 2009, reaching USD 4.2 million in value. In 2011 there was a further 12.7% increase to USD 4.8 million (Figure 45).

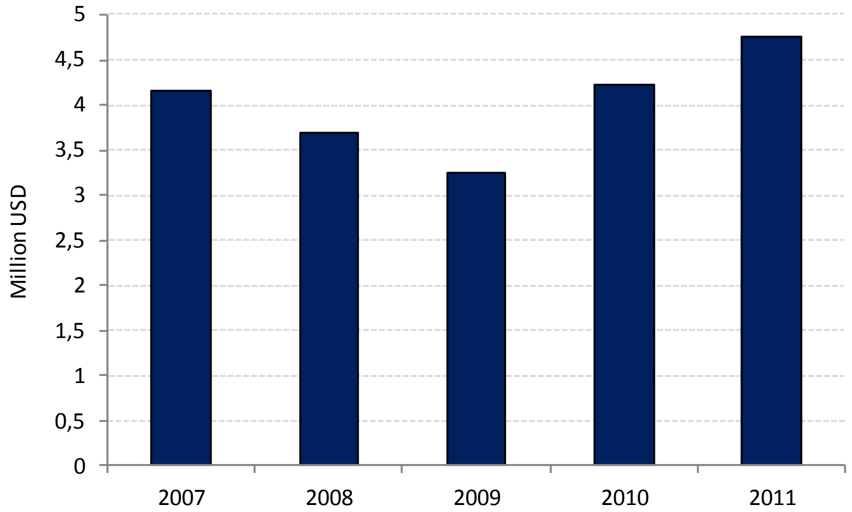

Figure 45 Australia carved doors imports from 2007 to 2011 (ABARES 2013)

The volume of Australian imports of panels and engineered wood products remained at historically high levels (URS 2012a). Despite soft conditions in housing construction activity, imports of secondary processed softwood timber (including mouldings, flooring and weatherboard products) reached around 65,000 m^3 and wood-based panels and engineered wood products rose to approximately 85,000 m^3 over the September quarter 2012. Imports over this quarter were sourced from a range of countries including Chile (20%), China (19%), New Zealand (16%), Indonesia (12%) and Malaysia (11%). Prior to 2009, import volumes of these products typically traded at around 15,000 to 20,000 cubic metres per quarter. In the period following the global financial crisis, as the AUD strengthened, imports of these products steadily increased. Over the 12 months to September 2012 prices for outdoor timber products have remained steady, which reflects relatively stable demand from the home renovation market.

Market requirements

Legal requirements

Information related to main drivers of legality for the teak value chain which include international laws and treaties, international trade programs, regional agreements, consumer country measures, voluntary programs, certification and legality verification, issues of international law, law reform, customary law and policies for decentralisation are discussed in report entitled *Study to assess the legality of smallholder teak plantations and the associated value chain* (Smith et al. 2014).

Environmental requirements

Formaldehyde emissions from composite wood products

The U.S. Formaldehyde Emissions from Composite Wood Products, proposed by the Environmental Protection Agency (EPA) consists of two main rules (EPA 2013). The first rule (proposal) applies to hardwood plywood, medium-density fibreboard, particleboard and finished goods containing these products that are sold, supplied, offered for sale or manufactured or imported in the U.S. the second proposal establishes a third-party certification program to ensure that composite wood panels manufacturers comply with the formaldehyde limits established. The comment period on the proposed rules is due October 9, 2013 (ITTO 2013c). These rules would require furniture manufacturers who laminate in-house to test and re-certify panels purchased for lamination, which may increase costs for furniture manufacturers, retailers and importers.

Markets trends

A requirement for large volumes and consistency in large sections of the European markets has increasingly focused attention on a limited range of temperate species, particularly oak. Oak is the most available and variable temperate hardwood and is now almost universally preferred in the world's furniture markets. Oak comes in all shapes and sizes, colours and grains and is capable of producing great character. Oak can also be treated in many ways and offered in light, dark and 'used' shades (Buckley 2009).

Ready availability, versatility and familiarity have meant that designers have continued to favour oak, even as fashions have shifted over the last decade from lighter to darker colours - a trend that would otherwise have been expected to favour many tropical species (Oliver and Donkor 2010). In fact, there were strong indications at shows and fairs that oak flooring is increasingly replacing tropical species, even in products in the darkest shades. The 2009 Milan show demonstrated that at the top end of the market there is huge commitment to the continued use of real wood. If something looks like wood in Milan, it always is wood. An increasing number of Italian furniture firms are participating in the Vero Legno (Real Wood) campaign, which certifies and labels products composed of real wood. On the downside, there was no tropical redwood on display in Milan. Clearly, the traditional look offered by tropical hardwoods is very much out of fashion. Some teak was on show, favoured for its darker-brown, grainy look, which is in fashion – but this section of the market was hugely dominated by walnut. Product quality is a key area of concern in the decorative veneer sector. Log quality is obviously a critical factor, and the long-term decline in the overall availability of tropical hardwood logs will undermine the overall competitiveness of tropical hardwoods in the long term. German furniture retailers are renowned for demanding defect-free, colour-consistent veneer for furniture catalogues that allow customers to return after long periods to add to their furniture collection.

At the other end of the spectrum is the custom designer, who may select a flitch of veneers with which to produce a work of art to satisfy the design brief of a particular client. In this part of the market, a significant premium may be placed on the range of species to choose from, natural characteristics, and the 'narrative' and environmental qualities associated with each species. The sheer range and variety of tropical hardwoods compared to temperate hardwoods suggests real opportunities to expand market share in this part of the market (Buckley 2009).

While demand for certificates and product labels is relatively undeveloped among end-users and distributors elsewhere in Europe, there is considerable interest amongst furniture suppliers in the marketing benefits of environmental messages associated with wood products. At the Milan show, for example, brands like FSC and PEFC were completely invisible. On the other hand, numerous companies supplying real-wood furniture were emphasizing the inherent 'sustainability', 'naturalness' and 'environmental friendliness' of wood. This situation contrasted strongly with the German Interzum show – a show which targets the furniture-supplying trade rather than the general public – where FSC and PEFC labels were everywhere. This highlights the extent to which demand for these labels is driven internally by the European trade and industry as a mechanism for protecting brands and improving the overall image and market prospects of wood products (Oliver and Donkor 2010).

Sustainable consumption and green consumerism have been dominant market drivers in EU markets since well before the crisis, with emphasis on ensuring supplies of legal and/or sustainable wood products. Environmental concerns have benefited FSC and PEFC certified hardwoods, the majority of which are sourced from Europe. Significant structural changes in the European wood importing industry, which had begun several years before the crisis, had intensified in response to the recession, including the need for flexible, just-in-time delivery of finished products to offset uncertainty in consumption and prices (Maplesden et al. 2013). Oliver and Donkor (2010) also noted that the recession had "further reinforced the need for finished products to be available for fast turnaround and in small, flexible container loads to offset uncertainty in consumption and prices. Retailers, wholesalers and importers are all increasingly working on a just-in-time basis and maintaining low inventories. These factors are working against tropical hardwoods, which tend to be more difficult to obtain at short notice at reasonably stable prices".

There is an emerging trend among central European flooring companies to avoid tropical wood flooring (Oliver and Donkor 2010). This is being adopted as a marketing tool and again particularly targets north-western European markets recently influenced by NGO campaigns that focused on the legality and sustainability of merbau. Nevertheless, the trend has not yet penetrated everywhere and tropical wood flooring remains very popular in southern European countries such as Spain, Italy and Greece. There are widespread expectations that recent regulatory measures to combat illegal wood products announced by the European Commission will significantly increase demand for certified products throughout the European veneer sector. The rapid progress and expansion of non-wood substitutes in high-volume, low-end sectors of the European market for surface materials suggests that opportunities for the expansion of markets for standard tropical hardwood veneers in these sectors must now be negligible. Even at the upper end of the market there is no doubt that competitive pressure from non-wood substitutes will continue to intensify for real-wood veneers as technical developments improve the look and feel of these substitutes. But the industry can build on the fact that the desire for the look of wood is strong and indications that consumers and designers at the high end of the market still seek the naturalness, sustainability, warmth and performance of real wood. The obvious popularity and visibility of santos palisander at Milan, and the apparent determination to use only the real-wood product, suggests that there is continuing willingness to show off the aesthetic qualities of tropical hardwoods in the most influential section of the European furniture industry. But this cannot be taken for granted. There is a critical need for active engagement with the European design community to maintain and rebuild market share.

Global population, increasing urbanization and GDP growth

Global demographic factors have significant potential to affect the relative competitiveness of tropical hardwoods and other materials. First, a very large absolute increase in the size of the global population is projected over the coming decades, from around 6.7 billion in 2008 to 9.4 billion in 2050. This implies significant underlying growth in global demand for all commodities, including wood of all types (World Population Bulletin 2008).

Second, population growth is unevenly distributed. During the 20th century, nearly 90% of population growth took place in less-developed countries (LDCs, as classified by the United Nations).

This imbalance in population growth will intensify in coming years. While the combined population of the LDCs is projected to increase from 5.5 billion in 2008 to 8.1 billion in 2050, the more-developed countries (MDCs) are projected to grow from 1.2 billion to 1.3 billion. Particularly strong growth rates are projected for Africa, where population is expected to double in size between 2008 and 2050, and in India, which is widely expected to overtake China as the most populous nation in the world by around 2030, with a population in excess of 1.4 billion (India National Commission on Population Report 2009). The low levels of population growth projected for the MDCs will be largely accounted for by the United States and Canada, where growth will be boosted by immigration from LDCs. The population is forecast to decline significantly in several MDCs, including in Eastern and South Europe, Japan, Taiwan Province of China and South Korea (World Population Bulletin 2008).

A third demographic factor is age-class structure, which differs radically between the LDCs and the MDCs. While the former are becoming increasingly characterized by large numbers of young people, exactly the opposite is true of the MDCs (World Population Bulletin 2008). Age-class structure has a very strong bearing on the types of products favoured by the consuming public. For example, survey work in the Japanese construction sector has shown that the degree of openness to external trade and modern designs is closely correlated to age. Older people tend to prefer traditional Japanese post-and-beam[6] building designs and the use of domestic materials. The fact that Japan has an ageing population goes some way to explaining the continuing dominance of traditional post-and-beam construction there and a particularly strong policy focus on substituting imported wood with domestic materials.

Another significant demographic factor is increasing urbanization. The world population is now evenly divided between urban and rural areas. By 2050, urban residents are likely to make up 70% of the world's population (World Population Bulletin 2008), suggesting an increase in demand for construction materials suitable for high-density living. At the same time, urbanization is contributing to the emergence of a trend in architectural and interior design to introduce wood materials in order to soften, 'humanize', and 'naturalize' harsh urban environments.

Carbon footprinting

Rising interest in the carbon footprint of products has the potential to be a strong marketing opportunity for tropical hardwood products, given research to acquire appropriate data. The opportunity is likely to be particularly strong for products based on local wood raw materials that are finished or semi-finished in tropical countries prior to export. It is, however, less likely to favour tropical hardwood products such as garden furniture if these are manufactured at a considerable distance both from the raw material source and the customer – as is often the case in Southeast Asia.

Wood products are generally seen as environmentally attractive because the sequester carbon, they are renewable, and they have low embodied energy. Growing trees absorb the major greenhouse gas, carbon dioxide (CO_2), from atmosphere through photosynthesis and store the carbon. Carbon stored in wood is released back to the atmosphere only when the wood or wood product decays or is burnt. Substituting wood products for materials that require large amounts of fossil fuel to create (e.g. steel, concrete, and other non-renewable materials) provide opportunities to reduce

[6] General term for building with heavy timbers rather than dimension lumber such as 2"x4"

greenhouse gas emissions while building Earth's capacity for carbon storage. When trees are cut, e.g. as a result of thinning, and used to produce wood products like lumber and furniture, the wood continue to store carbon for decades or centuries and recycling wood products increases storage longevity.

From the energy consumption standpoint, the production of wood products uses less energy (usually sourced from finite fossil fuels) compared with some other building materials. For example, one ton of cement requires 5 times more energy to produce than one ton of wood (APA 2012) (Figure 46).

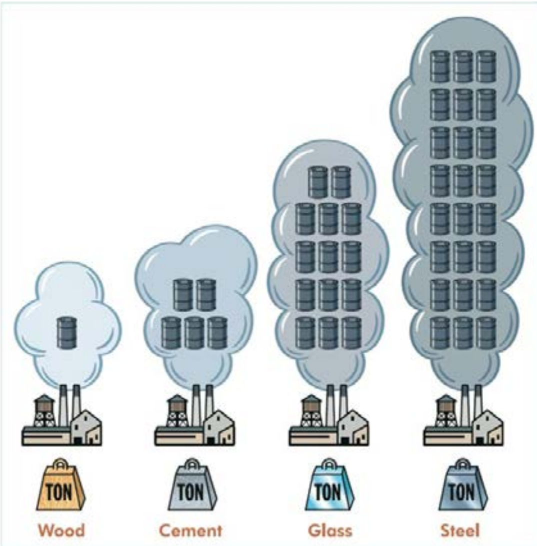

Figure 46 Amount of energy it takes to produce one ton of cement, glass, or steel to one ton of wood (APA 2012)

Wood also carries a carbon credit since net carbon emissions for producing 1 ton of lumber is only 50 kg compared to concret (210 kg C/ton) or steel (660 kg C/ton) (Ciecko 2013). If carbon storage within material is considered, then the production of one ton of lumber is even negative (-457 kg C/ton) because wood is stored in wood where it is not the case for steel or concrete. So not only trees are very effective in sequestering carbon but wood products can also contribute in storing the sequestered carbon.

Overall, forests and wood products can effectively reduce the process of climate change in several ways. Growing trees absorb carbon dioxide from the atmosphere and store the carbon very efficiently. This carbon then remains locked up in the wood even when we use it for building products or furniture.

Global market demand

Product and building design trends are critically important to the future competitiveness of the tropical hardwood industry and offer both opportunities and threats. Very strong interest in sustainability in the design profession, combined with designers' lack of knowledge of tropical forest issues, often results in strong prejudices against the use of tropical hardwoods. Growing interest in the mixing of materials is undermining the competitiveness of tropical hardwoods in sectors where they have been dominant in the past, such as garden furniture. On the other hand, moves towards 'natural', 'timeless', 'authentic', 'minimalist' and 'individual' products in the interiors sector could be turned to the benefit of tropical hardwoods – with appropriate marketing.

Exploiting these opportunities will be very challenging for the tropical hardwood industry. Global design trends tend to be led by large corporations and high-profile designers in industrialized nations who are more familiar with temperate wood products. In the absence of a strong cadre of influential designers in tropical countries, there is a threat of progressive loss of market share.

The best opportunities for market growth may be in domestic and regional markets. This conclusion is reinforced by economic trends that indicate that a growing proportion of growth in gross domestic product (GDP) in recent years has been concentrated in tropical countries and other emerging markets (World Bank 2009). At the beginning 1990s, the LDCs accounted for less than 20% of global GDP but on current trends this figure could reach 40% within the next decade. In terms of purchasing power parity, developing countries already account for around 50% of GDP. Much of this increase in GDP share can be attributed to rapid growth in developing Asia, the area encompassing China and India. While other developing countries may not have increased their share of global GDP their absolute level of GDP has grown significantly. For example, in the ten years preceding 2009, the GDP of sub-Saharan African countries increased from USD 324 billion to USD 870 billion, while the GDP of the Association of South East Asian Nations (ASEAN)-5 countries (Indonesia, Malaysia, Philippines, Singapore and Thailand) increased from USD 462 billion to USD 1195 billion.

Freedonia (2009) highlighted the importance of LDCs to future market demand in sectors particularly relevant to wood products. It forecast that the value of global demand for windows and doors, products that are significant outlets for tropical hardwoods, will grow by more than 4% per year to reach USD 167 billion in 2013.

Developing countries in Africa, the Middle East and Latin America are also expected to experience especially fast growth in 2008-13 as industrialization and rising incomes in many economies serve to boost demand (Freedonia 2009). Global Industry Analysts (2008) also highlighted the growing importance of LDCs in global markets.

Market-access strategies for tropical wood in LDCs are likely to differ from those pursued in MDCs. In the MDCs, for example, the domestic availability of large quantities of temperate and boreal wood products tends to force tropical wood into relatively small niche markets that focus on either high-exposure external applications or high-value decorative internal applications. However, the combination of high humidity and pests such as termites mean that temperate species often do not perform nearly as well in the construction sectors of many LDCs as do domestic tropical species.

Moreover, just as temperate wood-product suppliers currently benefit from proximity to the consumer in Western markets, in the future some tropical suppliers will benefit from proximity to the consumer in their domestic markets. Local knowledge and presence is likely to be even more important in those markets, which tend to be chaotic and fragmented and where there is a very strong focus on price, a considerable premium is placed on rapid construction, there are lower levels of compliance to specific building standards, and the diffusion of innovative construction methods is a complex and difficult process.

An increasing requirement for large volume, consistent supplies has resulted in shifts in demand for a limited range of temperate species, particularly oak, with stained oak increasingly replacing tropical species where darker colours are highly favoured. On-going work to modify the characteristics of temperate hardwoods and softwoods to improve their technical and aesthetic performance, mimicking the characteristics of tropical hardwoods, has been a significant threat to the tropical hardwood sector in EU markets (Maplesden et al. 2013).

WPCs are becoming an increasingly important competitor for tropical hardwoods, particularly in the decking sector but also for cladding, construction mouldings, and garden furniture. Total European WPC annual capacity was reported as approximately 120 000 tonnes, while European imports of WPCs from North America (with capacity now closer to 1 million tonnes) are also increasing UK sales of thermally-treated and acetylised softwood products were also rising despite the recession, targeting tropical hardwood market niches, such as window frames, decking, cladding, bridges, and other external applications (Maplesden et al. 2013).

Oliver and Donkor (2010) noted that global design trends tend to be led by high profile designers who are more familiar with temperate wood than tropical hardwoods and may be prejudiced against the continued use of tropical hardwoods.

The larger companies are more likely to demand environmental certification and to impose other technical requirements on their suppliers. This in turn is also encouraging a general shift to low risk products from an environmental point of view with importers actively avoiding tropical hardwood to improve their image.

Consumer perceptions

Surveys in industrialized countries reveal a strong cultural attachment to wood of all types. While there are often significant concerns in relation to wood performance in structural applications, there is a strong preference for wood in furniture and in other interior applications where it can be seen. Wood’s qualities of warmth, naturalness and beauty are widely appreciated.

Long-term market access continues to be significantly threatened by limited awareness and understanding among consumers of the concept of sustainable forest management in tropical countries and of the positive role that the tropical hardwood industry can play in contributing to rural development and in acting as a disincentive to forest conversion. Gains are forecast to be largely driven by demand in China, which is expected to account for over half of all expansion of the worldwide window and door market between 2008 and 2013.

A study published by the Ministerial Conference for the Protection of Forests in Europe in 2007 (Rametsteiner et al. 2007) came to the following general conclusions:

- Consumers across Europe often have very clear opinions on wood products and these are generally consistent across the continent. However, these clear opinions are formed largely on the basis of limited knowledge.
- Consumers prefer wood in furniture and interior applications where the wood can be seen and its most highly regarded characteristics may be fully appreciated. These characteristics are wood’s status as a natural material and its aesthetic design properties.
- The high ranking for wood applies only if tropical wood is specifically excluded. In many European countries, consumers consider the use of tropical wood to be harmful for the environment.
- There is a marked difference in the perceived environmental friendliness of domestic wood (high) compared with tropical wood (low). This difference in attitude is considerably less

pronounced in countries with high shares of imports and/or a high share of forests that are considered to be monocultural plantation forests (e.g. the UK, Ireland and the Netherlands).

- Consumers do not regard certified wood products as significantly better or more environmentally friendly than wood products without a label. This finding differs, however, for tropical wood, for which labels have a more positive influence.
- There is generally little or no consumer willingness to pay for certified softwood commodities, but there is more willingness to pay premiums for high-quality and specialist assortments, particularly tropical wood.
- Consumers consistently state that environmental attributes are less important than other attributes such as quality, price and design when it comes to purchasing products.

In EU, limitations of certification systems Certification systems operating globally like FSC and PEFC have been proposed as the solution to the challenges of legality verification in lengthy and complex supply chains (ITTO 2013f). However, the information provided did not provide assurance that these systems are yet of sufficient scope, capacity or rigour to address these problems. The majority of European furniture retailers have upwards of 200 suppliers, each of which buys from a similar number of sub suppliers, who may in turn buy from any number of agents, and that's before you get any way near the forest. Ensuring that each supplier in the chain is chain of custody certified is an enormous challenge and very rarely achieved in the wooden furniture importing sector. Even where it is achieved, the amount of certified wood available falls far short of what is required. Concerns were expressed about the potential abuse of chain of custody certificates in such a complex trading environment. It was suggested that supplying companies frequently misuse chain of custody certificates by claiming they provide evidence that all their wood supply is legal, rather than just that proportion from certified forest.

Architectural and designer perceptions and trends

Interviews with interior and furniture designers undertaken during 2009 by Oliver and Donkor (2010) suggest that, compared with softwoods, tropical hardwoods tend to be viewed more positively on some issues (e.g. natural technical performance and aesthetic qualities) and worse on others (notably environmental attributes).

Another key feature of design trends is that they are highly fluid and dynamic, particularly in the furniture and finishing sectors. Drawing on impressions gained from products and interviews at major furniture and construction shows combined with a review of recent design literature (e.g. Carlson 2007, 2008), it is possible to provide a flavour of some key themes in design that are likely to impact on the future consumption of various materials:

- Responsible and sustainable: Sustainability is the buzz word everywhere. Among architects, sustainability covers a host of issues. In furniture design the term is frequently linked to efforts to increase the durability of products, reduce waste and enhance recycling rather than to the origin of the raw materials.
- Delight and aesthetics: Designers today tend to feel an obligation to incorporate delight and aesthetics into their designs. Moreover, they recognize that aesthetics is not just about visual appeal. Sound, touch and even smell are increasingly seen as important in the creation of delightful architecture and products. According to the Carlson (2008), while design is

partly about bringing function into our everyday life, it’s also about creating desire. Good design can make savvy customers pay a premium for an artefact or ingredient.

- Natural: There is and increasing view that design should be humane and should connect people. This view, linked to demand for products that seduce by appealing to all the senses, has encouraged borrowing from nature and led to more interest in low-tech and globally understandable design. The recession has played a part in deepening this trend, as people increasingly seek to escape from their economic woes through recourse to nature. In the furniture sector, designers are interpreting this theme in a huge variety of ways, such as through the widespread use of natural fibres and reclaimed materials and non-geometric rough, ethnic and rural designs.
- Narrative: Designers are increasingly interested in the narrative behind particular materials - for example, what is its historical context and what cultural, social and moral messages does it send?
- Health: There is emerging concern for how products and buildings affect physical and psychological well-being. These trends are both influenced by and feed wider public concerns about personal health (Rice et al. 2006).
- Mixed materials: The huge range of materials now available and a more eclectic approach to design - mixing Eastern and Western or old and new, the use of traditional shapes in modern materials, and combining unique pieces with mass-produced items - is encouraging a much greater mixing of materials.
- Authentic and individual: Parts of the design community are reacting against anonymous globalization (e.g. look-a-like airports, shops and hotels). This reflects a perception that consumers no longer want simply to buy they want to experience the real deal and are looking for regional or local individuality and the knowledge of who has made a certain product. This suggests that rather than shipping generic products around the globe, companies can benefit from creating a unique profile and a unique assortment on each continent or in each country. Folklore and artisan production may see a boost.
- Pragmatic, durable and timeless: According to organizers of the 2009 Milan Salone del Mobile show, a major impact of the recession is that “some designers and firms have striven for greater pragmatism, a more balanced relationship between object and cost and a greater focus on consumer demand”. This has led, in turn, to an “unexpected return to minimal, scaling down the decorative explosion of the last few years”. Greater emphasis is being placed on timeless objects that are built to last rather than paying lip-service to passing fashions.

All these trends have significant implications for the future competitiveness of tropical hardwoods and the direction of marketing strategies. Tropical countries may also be able to improve their competitiveness by creating furniture products that incorporate elements of their cultural identity and contribute to a feeling of authenticity and individuality. This analysis is a limited snapshot of current trends in a highly fluid and dynamic field. Ultimately the competitive performance of different materials will be dependent on their ability to influence the specification process. The first step is to understand this process. A lack of understanding has been identified as a common factor amongst many materials suppliers and manufacturers. Professional designers had considerable influence over the choice of materials used, although the situation is likely to vary widely by country and sector.

Another key issue is the interaction between designers and consumers. Variations in demand for tropical wood products are often presented as simply a result of changes in fashion - for example as consumer preferences move from light to dark shades or from clear-grained to heavily textured woods. The implication is that fashion is an external force over which supplying sectors have little or no influence. The reality is that fashion is neither determined by consumers alone nor by supposedly powerful retailers and their trend consultants. The two march together as consumers ask for variation over time and as retailers and producers aim to create new trends and fashions to maintain or increase sales (Rametsteiner et al. 2007). In theory, supplying industries have the potential to influence both sides of the equation - through publicity campaigns to alter consumer attitudes and through more targeted campaigns to engage with professional designers. In practice, resource constraints usually dictate a focus on the latter approach.

Elements of a design-led marketing initiative for the tropical wood industry

Given that as the competitiveness of the tropical hardwood sector is declining relative to alternative wood and non-wood products in traditional market sectors, a key recommendation of Oliver and Donkor (2010) is the desperate need for a unified generic design-led promotional campaign to protect the sector's current market position. Such a campaign is also needed to identify and develop demand in new niche markets. While challenging questions of how to acquire funding for and to organize such a campaign are not addressed here, Oliver and Donkor (2010) provided insights into its potential role and scope. Specifically, it would:

- Need to acquire comprehensive information on market perceptions of tropical hardwoods through designer, manufacturer and consumer surveys, particularly outside Europe and North America where this information is very limited. This would allow more accurate targeting of communication messages and provide a baseline on which to assess progress.
- Mainly target designers and architects. A core objective would be to both influence architectural and design trends in industrialized countries and build a strong cadre of designers in tropical countries to act as ambassadors promoting new regional styles based on locally derived tropical hardwoods.
- Focus on providing information on the structural and design characteristics of tropical hardwoods, particularly through the development and distribution of design manuals and actual case studies of tropical hardwoods in use. It would need to engage in regular seminars for architects and product designers, a comprehensive public relations program targeting the design press, and regular participation in trade shows, and it would need to involve sponsorship of individual designers and of building and furniture design competitions in leading markets.
- Participate in key standards-setting processes with potential for boosting market prospects for tropical hardwoods, such as processes governing forest certification, GBIs, carbon footprinting, CSR and LCAs.
- Engage in targeted political lobbying in wood-consuming countries in order to influence building laws and codes, the contents of public-sector procurement policies, and processes to develop legislation designed to remove illegal wood from trade.
- Aim to both inform designers of the technical characteristics of tropical hardwoods and excite them with respect to the aesthetics and wider cultural narratives of tropical hardwoods. Key communication messages would be:

- ✓ The natural design qualities of tropical hardwoods: warmth, health, beauty and exoticism and the huge diversity of colours, looks and textures.
- ✓ The natural technical qualities of tropical hardwoods: stability, strength and low maintenance requirements, and their durability in high-exposure applications.
- ✓ The value of choosing an authentic product over artificial alternatives.
- ✓ Industry commitment and progress towards achieving forest certification.
- ✓ The contribution of sustainable tropical forest management to rural development and poverty alleviation and its role as a disincentive for forest conversion.
- ✓ The low carbon footprint and the emissions avoided by using tropical hardwoods in place of more energy-intensive products such as plastics, aluminium and steel.

Wood processing

To reduce costs, furniture manufacturers tended to compromise on log quality. There is also insufficient understanding of raw materials and handling in the sector. Although the wood-processing technology used in Southeast Asia is among the best in the world, it is not used efficiently due to an “inferior-quality workforce” (Ratnasingam 2006b).

The rising dependence on small-dimension plantations is also increasing the challenges of wood conversion. The fast growth of plantation woods in the tropics leads to high internal tensions and defects in the wood. Such plantations do not lend themselves well to the many tried-and-tested harvesting and processing technologies such as mechanized harvesters and fast circular-saw machines that are used widely in Northern Hemisphere softwood forests (Oliver and Donkor 2010).

Due to lower levels of durability, temperate hardwoods in their natural form are not generally considered within the garden-furniture trade to be a significant direct competitive threat to the best tropical hardwoods (Oliver and Donkor 2010). However, there are now clear signs that mounting problems in the supply of suitable tropical hardwoods is encouraging some Southeast Asian garden-furniture manufacturers to abandon the garden-furniture sector in favour of indoor products, where more readily available imported temperate hardwoods - particularly from the United States - can be used. Companies are considering changing from outdoor to indoor furniture manufacture. It is notable that prices for American hardwood species are often significantly higher than prices for locally sourced tropical hardwoods. Anecdotal reports and the evidence of trade shows strongly suggest that wood’s share in the Asian furniture-manufacturing sector is being eroded and that this decline is falling particularly heavily on tropical hardwoods in the outdoor sector. Key alternative products replacing tropical hardwoods identified during the course of research include:

1. Plastics in many forms;
2. Acrylic for outdoor furniture coated onto MDF for a no-maintenance, weatherproof material;
3. Bamboo is being used for indoor and outdoor furniture: it is readily available, exceptionally strong and durable, prices are stable, there is no need for certification, and it can be stained or treated to look like hardwood.

Ratnasingam (2006a) noted that the decision to purchase a piece of furniture is impulsive and is a matter of perceived value rather than actual value. Factors of quality and design are the main priorities for furniture consumers, while material, service and price are the next most important factors.

According to Oliver and Donkor (2010), it is hard to generalize about the impact of wood raw-material price on the competitiveness of tropical hardwoods in the Southeast Asian garden-furniture sector. The reality is that the market is highly differentiated between top, middle and low-end products:

- For many years, garden-furniture manufacturers at the upper-end of the market have been willing to pay high prices for natural-forest teak due to its high quality and yield, a lack of any real alternatives, very limited availability, and strong demand from China and India. Natural-forest teak products now occupy a very small, high-value niche market that to date has been resistant to substitution. Natural-forest teak retains a certain aura of quality that is hard to replace. Top-end clients like their products to look expensive, which is much easier with the best teak than it is with plastic.
- Plantation teak remains important at medium price points in the market. Prices for plantation teak are highly variable depending on quality. High and volatile pricing in this section of the market has made tropical hardwoods extremely vulnerable to substitution, both by much cheaper FSC-certified plantation woods and by non-wood products.
- The low end of the market is increasingly dominated by cheap, fast-grown plantation species, notably eucalypt and acacia. While inferior in quality, these wood products tend to be offered as FSC-certified. Prices for FSC-certified eucalypt and acacia are usually sufficiently low to make them highly competitive against non-wood products.

The need for product to be readily available for fast shipment has also become increasingly important. Finished products need to be available for fast-turnaround and in small, flexible container loads. Retailers, wholesalers and importers are all increasingly working on a just-in-time basis and maintaining low inventories. These factors are generally working against tropical hardwoods, which may be difficult to obtain at short notice and at reasonably stable prices.

Quality

Although tropical hardwood, particularly teak, retains a reputation for quality among consumers of garden furniture, certain recent trends may have damaged this reputation. Quality demands for outdoor furniture have generally been rising, particularly with a trend towards combining furniture for indoor and outdoor use. This is encouraging greater interest in well-finished modular, foldable, and lightweight furniture. Again this trend generally favours alternative materials, albeit with the continued use of small volumes of teak to soften lines (Garden International 2009). Design trends also tend to be heavily influenced by Western and Japanese firms, which have little interest in promoting tropical hardwoods.

As in other sectors, the drive for certified products has come more from the large retailers wanting to protect their corporate images, and also from Western designers concerned about environmental impact, and less from pressure from the buying public (Forest Innovation Investment 2009). Consumer surveys regularly put environmental concerns relatively low in the list of factors contributing to purchasing decisions on wooden furniture (Ratnasingam 2006a). Demands vary between countries: for example, interest in these issues in considerably greater in the UK and the Netherlands than it is in Italy or Spain. Nevertheless, the underlying trend has been towards a progressive strengthening of demand for the FSC certification of all tropical woods used in the sector (Forest Innovation Investment 2009).

Another issue that is coming to the fore and which was raised by European furniture designers is the carbon footprint associated with transport. For some, this is as significant as FSC certification. A Danish designer, for example, noted that he would not design products in FSC-certified wood because these woods come mainly from Brazil and are shipped half way round the world, made into furniture in Vietnam and other low-cost countries in Asia, and shipped from there to Europe and/or back to America. This designer would, however, consider specifying FSC-certified hardwood if the raw material were to be sourced locally in Southeast Asia.

ITTO Recommendations

Tropical hardwood plywood for the European and United States markets

Tropical hardwood plywood producers supplying the United States and EU markets need to focus now on higher-quality niche market products and emphasize adherence to emerging quality and environmental standards.

Southeast Asian plywood in Japan

Significant volumes of tropical hardwood plywood continue to be absorbed by specialist sections of the market, notably flooring and interior finishing. The Japanese market is generally favourably disposed towards the continuing use of wood products. Increased concerns about the health impact of buildings and the need for strong performance during earthquakes, combined with improvements in fire-retardant treatments, are all creating new opportunities for wood products. Major emerging issues include the need to demonstrate that wood products are derived from legal sources.

Southeast Asian garden-furniture sector

Southeast Asia is a major source of tropical hardwoods while the manufacture of garden furniture, particularly for markets in North America, Europe and Japan, remains a key end-use for this wood, offering significant potential to add value prior to export. The total Southeast Asian furniture sector is estimated to have a production capacity of close to USD 14 billion. It is heavily export-dependent, with 60% of the product finding its way into the global market.

While garden-furniture manufacturing is distributed throughout Southeast Asia, various countries have diversified their furniture interests and become more specialized. Wooden-garden-furniture manufacturing is particularly strong in Indonesia, Thailand and Vietnam. Indonesia and Thailand have benefited in the past from their more ready access to teak, a species that is strongly preferred in the sector. A survey of furniture manufacturers in Southeast Asia in 2004/2005 by the International Furniture Research Group (IFRG) indicated that 41% of all hardwoods used in the sector were imported and 59% were locally sourced (Ratnasingam 2006c).

Wood used for garden furniture needs to have proven long-term weather resistance. Other desirable features are high strength, good machinability, screwing and gluing properties, and consistent colour that is resistant to staining. In addition, requirements for forest certification are particularly significant in the garden-furniture sector and have become an important determinant of available supply. The major retailers in the UK, Germany, Holland, Scandinavia and other EU countries, as well as the more responsible United States buyers, will not deal in any non-certified wooden garden furniture (Forest Innovation Investment 2009). The general preferred demand in the tropical hardwood garden sector is for FSC certification, although some will accept, as an interim measure, wood verified through various phased certification programs such as those operated by The Forest Trust or Smartwood.

From a technical perspective, teak is by far the preferred species. Several garden-furniture manufacturers interviewed for this study indicated that they only use teak. There is considerable difference between plantation-grown teak and natural-forest teak, the latter offering significantly higher quality and yield, so the two are usually considered within the industry as entirely separate and distinct commodities.

While significant, teak plantations have major limitations in the supply of wood to the garden-furniture sector. Plantation teak is generally cut very young (after about 17 years of growth), whereas traditional forest teak is cut after 40-60 years and is of much larger dimensions and produces higher-quality wood.

Demand for FSC-certified wood has encouraged the use of plantation-grown acacia from Vietnam and other Southeast Asian countries, together with eucalypt. These wood species are generally very fast-growing and are capable of producing a usable crop within only seven years. While they lack the qualities of high strength, durability, workability and colour associated with teak they seem to satisfy the quality requirements of large retailers demanding FSC certification that tend to supply the large-volume, low-value end of the market.

European window-frame sector

Although wood windows are beginning to reclaim market share lost to uPVC earlier this decade, most of these gains are expected to be achieved by softwoods and EWPs manufactured in northern European countries. Wood–plastic composites also have the potential to help close the significant price gap that still exists between wood and uPVC. Key challenges for tropical hardwoods are the large and expanding price gap with other wood products and the continuing constraints on the supply of certified tropical hardwood products.

Nevertheless, there is a small but significant number of manufacturers and end-users who favour the look of tropical hardwoods and who appreciate their qualities of natural durability and stability. If sufficient resources are committed to proactive marketing, there is potential to maintain and even extend this market; for example, marketing coupled with a rising availability of certified sustainable products could focus on the whole life cost benefits of tropical hardwoods.

Recommendations for producer countries

- Consideration should be given to opportunities for linkages with programs promoting higher-quality and sustainable construction in domestic markets.
- Improving the efficiency of wood-processing operations and the level of knowledge of wood handling.
- Encouraging a more positive environment for innovation and for research and development.
- Invest in development of new products and geographical market opportunities , including domestic and regional markets.
- Continuously make gains in productivity to reduce costs and maintain competitiveness, and to identify and exploit sources of competitive advantage.

- Focus on value-added and innovative products which are less affected by global economic downturns.

Recommendations for tropical hardwood industries

- Developing the opportunities that exist for tropical hardwoods in higher-value niche markets. Seeking to compete in large-volume, low-value commodity markets, where softwoods and other cheaper commodities dominate, is unlikely to be a sustainable long-term strategy.
- A commitment to full conformance with emerging quality, environmental and forest-certification/legality standards. Long-term competitiveness, particularly in higher-value niche markets, is likely to lie in ensuring tight conformance with these standards. Rising consumer demands for quality in all its forms and moves towards prefabrication are constantly increasing the need to supply 'knowledge-based' products. Wood products now need to be bundled with product information in the form of third-party labels and other forms of declaration covering technical performance, legality and the sustainability of sources, corporate responsibility practices, contributions to the carbon balance, LCA, and energy consumption.
- Improving the regularity and consistency of wood supply through improved logistics, an increased dependence on resources managed for long-term sustained yield, including both plantations and managed natural forests, training in wood-handling, and other efforts to improve the efficiency of wood-processing operations.
- Improving productivity, product diversification and innovation, and the development of a range of specialist product lines for specific market niches.

Tropical hardwoods strengths, weaknesses, opportunities and threats (SWOT) Analysis

Overall, tropical hardwoods are threatened in key market niches by a wide and increasing range of innovative products. They also suffer from declining price expectations and falling raw-material quality, image problem, and are being squeezed by a whole host of policy measures. Nevertheless, the tropical wood industry and tropical hardwood products have significant strengths and many policy initiatives offer opportunities as well as threats. Table 10 below summarizes a strengths, weaknesses, opportunities and threats (SWOT) analysis (Oliver and Donkor 2010).

Table 10 Tropical hardwoods strengths, weaknesses, opportunities and threats analysis (Oliver and Donkor 2010)

SUPPLY	INDUSTRIAL STRUCTURE	PRODUCT MARKETING
Strengths		
Tropical wood has superior natural qualities of durability, clear grain and aesthetic appeal Competing forest resources lack the range of decorative species. Some tropical wood products	A few tropical countries are high in competitiveness rankings. Wages are low in most tropical countries. Southeast Asia has a strong	Prices are no higher than some competing products. Technical innovations have yet to fully close the gap on the performance of tropical hardwoods.

are standard stock items in major consumer markets Programs are in place (e.g. ITTO, FLEG) to tackle forestry problems. Models examples of sustainable forest management exist Combining income from a range of natural forest services is profitable. Physical environment offers potential for high-yielding plantations. In some areas there is progress to develop certification and legality verification.	reputation in the global furniture industry. There are strengths associated with small enterprises. Large tropical concession holders can benefit from economies of scale not available to temperate hardwood producers (e.g. in forest certification)	Tropical hardwood retains a presence in high-value niche markets. Tropical hardwood can be a very low-maintenance product There is a huge range of species and looks. Tropical hardwoods have desirable qualities shared by all wood products (i.e. energy-efficiency, naturalness, biodegradability and carbon sequestration). Consumer surveys suggest people like natural wood for interiors and furniture. Wood has strong environmental credentials across the product life cycle Wood is perceived to have a better environmental performance than plastic.
Weaknesses		
There is a heavy dependence on unsustainable resources. The productivity of marketable wood is relatively low in natural tropical forests. Tropical forestry has a low financial yield. There are weak prospects for improved tropical forest management. Forestry regimes in some tropical countries require reform.	Many producer countries have a poor socioeconomic environment. Tropical wood-processing industries are inefficient. Challenges of converting tropical plantation wood. There is a high level of fragmentation in the wood-processing sector. Labour standards are lower in developing countries.	The prices for tropical woods are high compared with softwoods and most non-wood substitutes. New products such as plastics, composite panels and combi-products have lowered price expectations in key market niches. The pricing of tropical hardwoods is volatile. Wood has technical constraints compared with other materials (e.g. it lacks the toughness of

Plantations have been mainly established outside the tropics The tropical hardwood industry has high transport costs and long lead times. There is a relative lack of certified tropical forest products compared to other wood products.	There is a lack of own-brand furniture-manufacturing. There are low levels of investment in research and development.	steel and the strength-to-weight ratio of aluminium). Architects and consumers perceive that wood performs poorly in construction applications. Influential designers, architects and manufacturers are unfamiliar with tropical hardwoods. There is a lack of information on the characteristics of tropical species. There is a lack of access to knowledge in tropical countries There is a lack of diversity and volume in product supply and there is over-dependence on a few standard items. There is a lack of data on the carbon implications of sustainable tropical forest management for wood production. There are consumer misconceptions about sustainable forest management. Illegal logging and tropical deforestation have created a negative impression. There is a lack of data on LCA There is a lack of information on market perceptions of tropical hardwoods.
SUPPLY	**INDUSTRIAL STRUCTURE**	**PRODUCT MARKETING**

Opportunities		
Tropical forest issues have a high political profile and there is potential to prioritize action on sustainable forest management. There is potential for an influx of new finance for tropical forest conservation and management to meet climate-change objectives. There is potential for the recognition of the carbon-sequestration benefits of harvested tropical wood products. There is potential to further develop tropical plantation resources. New technologies to improve performance of temperate and plantation wood may be applied to tropical wood. Ongoing forest research into sustainable forest management, geographic information systems and wood tracking is improving the potential for forest certification.	Globalization: wood processing in China/Vietnam/India is increasing global consumer access to tropical products. Consolidation in the importing sector in major consuming countries irons out supply and reduces price volatility. Increased containerization reduces shipping times and allows for smaller mixed shipments. There is potential to encourage the development of trade associations and other structures to increase the influence of small and medium-sized enterprises.	The global consumption of all materials is expected to increase. Increasing urbanization at the global level creates demand for natural materials to humanize space. High-value niche markets have potential. Real wood remains popular There is potential to exploit design trends favouring tropical hardwoods (e.g. interest in natural, durable materials and products with cultural narrative). There is potential for lesser-known species in the finishing and interiors sectors. The value in species diversity can be exploited – there are numerous niches, and many species could be attractive to designers. Programmes could be initiated to promote sustainable construction in LDCs to boost domestic wood demand. Energy-efficiency measures create new opportunities for wood in the windows and doors sector. The increasing focus on quality standards in many countries could particularly benefit larger tropical suppliers at the

		expense of Chinese suppliers of lower-quality products. Tropical wood should perform well in life cycle analysis. Carbon footprinting benefits products manufactured in tropical countries prior to export. Emerging interest in whole-life costing can benefit tropical hardwoods because their high durability offsets higher up-front costs. With appropriate organization, tropical wood can be readily recycled, and it is also easily disposed of because it is non-toxic and biodegradable. Legislation and procurement policies targeting illegal wood imports have the potential to help remove illegal competitors and boost sales and premiums for certified tropical wood. Certification can overcome barriers to tropical wood market access. The marketing potential of the FLEGT VPA initiative gives rise to the prospect of building a marketing program around a common system. The CSR policies of large consuming corporations offer opportunities to develop a rational dialogue and to move away from single issues.

SUPPLY	INDUSTRIAL STRUCTURE	PRODUCT MARKETING
Threats		
The availability and quality of tropical wood are declining. The continuing conversion of forests threatens the security of the resource. There is an inability to meet certification requirements. The rowing focus on the carbon role of tropical forests may reduce the focus on sustainable forest management. Heavy-handed responses to illegal logging could add costs to legitimate operators without providing market benefits. The need for rapid delivery and turnaround times favours alternative products; this is becoming more of an issue in the recession.	Wood processing in China/Vietnam/India threatens nascent value-added industries in tropical countries. Dominant corporations and leading designers in industrialized countries increasingly shift global markets away from tropical hardwood.	There are widespread negative perceptions among specifiers, designers and consumer of tropical wood's environmental credentials. There is widespread ignorance among designers and consumers of the concept of sustainable forest management. There is increasing competition from modified temperate wood products, engineered and composite wood products, modern surface technologies, other wood fibres and non-wood products. The sector has lost share in some sectors to even lower-maintenance or no-maintenance products. Products from plastics recycling are specifically targeted at tropical hardwoods. There is a loss of share to abundant and more familiar species, particularly oak. Chinese combi-plywood reduced price expectations in key product markets. Tropical countries suffer from a relative lack of access to certification and testing facilities. The diversity of quality and

		certification standards creates confusion and adds to the costs of tropical suppliers. Moves to pre-fabrication favour tightly specified products and undermine traditional markets that preferred tropical wood for its flexibility. The effects of the global financial crisis hit some traditional markets very hard – e.g. veneers in southern Europe. Low price expectations, tighter margins and the falling quality of the raw material are undermining tropical wood's reputation for quality. Some design trends are encouraging a move away from tropical wood – e.g. the interest in sustainability. The marketing and lobbying of temperate wood product suppliers are generally more effective than that of tropical wood suppliers – it often pays to denigrate tropical wood. The large, high-profile marketing campaigns of other materials sectors expropriate wood's environmental credentials and denigrate tropical wood. Public-sector procurement policies can actively discriminate against wood as the only material required to

		demonstrate sustainability. Imported hardwoods are disadvantaged compared with other wood. Legislation targeting illegal wood imports may fall more heavily on tropical than temperate suppliers. The CSR policies of large consuming corporations may threaten the market position of tropical hardwoods. Carbon foot printing threatens some tropical wood-product manufacturers, such as Southeast Asian furniture manufacturers with long supply lines.

Conclusions

Based on the literature, here are some of the most important elements to keep in mind when developing a strategy for the Lao PDR wood and wood products industry.

Factors are acting to undermine overall timber industry competitiveness, particularly the heavy focus on a volume-driven rather than a product-and-design-driven industrial strategy.

Mounting supply difficulties, environmental concerns and changing consumer tastes in favour of light, low-maintenance products that may be used both indoors and outdoors are driving a shift away from tropical wood in favour of non-wood products such as plastics, wicker and bamboo.

There has been a trend away from teak products, partly because it has become expensive but also because the market became saturated and this tended to reduce its desirability.

The trend away from tropical hardwood may only be addressed through a design-led marketing initiative aimed at returning it to fashionable status. This needs to target both Western and Japanese designers - who are influential in global design - and up-and-coming Southeast Asian designers who can act as ambassadors to promote new regional styles based on locally derived tropical hardwoods. The success of such an initiative will depend on measures to improve the availability and surety of supply and, above all, on consistent, affordable pricing.

Tropical hardwoods retain a significant presence in some relatively high-value niche markets, including high-end windows, external joinery, boat-building and marine works, and decorative veneers for quality furniture. In higher-volume commercial furniture sectors there is often a need for products to be available as both solid and veneer for matching, and for long-term consistent supply so that customers can return to product ranges after long periods to add to their collection. This tends to focus markets narrowly on large-volume, readily available species. To date this has tended to benefit a few temperate hardwood species, particularly oak, over tropical species.

The development of plantations can be combined with opportunities to exploit technologies that have evolved for temperate products to improve the performance of fast-growing species. Examples include lamination, finger-jointing, heat treatment (particularly of plantation teak and rubber wood), the production of composite panels from wood residues and other natural fibres, new paint treatments (e.g. for acacia), and reconstituted veneer products (e.g. Alpi's Alpilignum).

Opportunities associated with product marketing:

- Increasing global consumption
- Increasing urbanization, which creates demand for natural materials to humanize space
- High-value niche markets
- Real wood remains popular
- Design trends favouring tropical hardwoods: Moves towards natural, timeless, authentic and minimalist products in the interiors sector should, with appropriate marketing, benefit suppliers of a traditional material such as wood. This can be very enticing if presented in the right way, given the material's exoticism and diversity and the role that it can play in financing rural communities in developing countries. Tropical countries may also be able to enhance their competitiveness by creating products that incorporate elements of their cultural identity and contribute to a feeling of authenticity and individuality.
- Energy-efficiency measures create opportunities in the doors and windows sector: An increasing policy focus on energy efficiency in major markets is improving wood's overall competitiveness against non-wood products in the door and window sectors. Wood is a good natural insulator. As a result, wood-framed windows - including tropical-hardwood-framed windows - are capable of achieving relatively high U-values without adding significant cost.
- Increasing focus on quality standards: In the key markets of Europe, Japan and the United States, the emphasis on quality performance standards is rising rapidly. In the EU, the enforcement of mandatory CE-marking standards is becoming more effective. In Japan there has been a dramatic increase in the focus on quality through recent amendments to the Building Standard Law. In the United States, importers and distributors are becoming more sensitive to accusations of inferior quality and are now going to greater lengths to ensure conformance to tougher quality standards among their international suppliers. The largest importers are actively lobbying for the strict enforcement of tough quality and environmental standards, notably with respect to formaldehyde emissions. This presents opportunities for tropical suppliers, many of whom have already demonstrated their ability to conform to tough quality standards, while competing manufacturers, particularly smaller companies in China, have struggled.

- Certification can overcome barriers to tropical wood market access: Survey evidence suggests that forest certification can overcome negative public perceptions of tropical hardwood.

Threat associated with wood supply:

- Declining availability and quality: The declining availability and quality of the best-known primary species such as teak, mahogany, meranti/lauan, sapele, sipo/utile, iroko, ipe, merbau and ramin, some of which have achieved an aura of high quality and consistency in wood markets across the world (a reputation that is hard to substitute for), is a major threat to the long-term competitiveness of the tropical hardwood sector.

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