

# Capitalising on change

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# Foreword | A fresh change

The changes we saw emerging in the latter half of 2008 continue to dominate the automotive landscape at this point in 2009. In the midst of this dynamic environment, *Global Automotive Perspectives* now delivers the same high quality thought leadership you've come to expect from PricewaterhouseCoopers in shorter but more frequently delivered issues in a fresh format.

This issue looks at three top-of-mind issues in today's changing environment: automotive financial supply chain recovery, treasury management, and powertrain electrification.

## **Global automotive financial supply chain recovery**

- Production volume volatility impacts even automotive suppliers with ample liquidity
- New creative financing structures are necessary to avoid a major shakeout in the US automotive industry

- Expanded stakeholder responsibilities are required in a decentralized European automotive industry
- Supplier risk management should become a core function for automotive companies in the new financial reality

## **Automotive treasury best practices**

- Global treasury platforms provide a quick and easy way to monitor cash
- Commodity hedge accounting solutions can lower P&L volatility
- Managing credit risk is a strategic function with a significant impact on funding terms and corporate liquidity

## **The impact of electric vehicles**

- With incumbent automakers and suppliers suffering budget constraints, new entrants from other industries are establishing strong technological positions in the electric powertrain business
- Short-term gains from incentives combined with strategic large-scale investment are required to make electric powertrains a viable consumer option and achieve cost effective competition with traditional powertrain technology
- Current business models will adapt to the change, with fleets being the likely wide-scale introductory channel

As 2009 began to unfold, it became increasingly clear that the significant changes we saw emerging in the latter half of 2008 continue to dominate the automotive landscape. Changes in financing sources, in ownership, in consumer demands, and more dominate the industry news.

This issue of *Global Automotive Perspectives* examines three top-of-mind issues facing automotive executives in today's dynamic environment. We begin with automotive supply chain financing, which has been especially difficult to manage in recent times because of deteriorating credit ratings within the industry, low margins and profitability from competitive pressures, and the high capital intensity of the industry. Now more than ever, it is important for auto manufacturer executives to assess their supply base risk in the context of the current environment and construct a viable plan that includes formalizing the financing tools necessary to secure their supply chain.

Related to the need to address liquidity in the automotive supply chain is the manner in which such funding can be secured. Global treasury management has become increasingly important and a more attractive option for automotive companies with global operations than it has been previously. Bundling and access to funds in a method that improves efficiency while reducing capital lockup provides security, and is one example of how automotive companies can remove obstacles from their path while regaining fiscal control of their operations.

Still important is the need to deliver innovative products and technologies that customers are demanding in today's hyper-competitive and volatile environment. The challenge here is how to design industry-leading and "greener" products when your company may be operating in survival mode, with expenses being cut across the board. The rise in interest in electric vehicles, while in some perspectives a welcome change, presents just such a challenge for established automotive companies while at the same time is introducing new players to the market.

We hope that *Global Automotive Perspectives* delivers fresh insights that will enable your company to capitalise on new opportunities in this time of change.

We invite you to contact us and to visit our website, [www.pwc.com/auto](http://www.pwc.com/auto), to download this and many more other engaging thought leadership publications.

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# Financial recovery in global automotive supply chains: Addressing industry sustainability and survival in the global economic crisis

## Introduction

Ensuring a stable production supply has become increasingly difficult as the credit crisis and industry consolidation increases financial pressure on automotive suppliers. Standard procurement, risk management and workout practices are generally not sufficient to deal with today's environment, creating the potential for production disruption, platform delays and warranty claims.

Financing within automotive supply chains has been difficult for a number of years due to deteriorating credit ratings within the industry and a general lack of available private equity investment. The credit crisis compounded this problem through the elimination of various instruments used by financial institutions to enable the extension of supplier credit, as well as imposing capital constraints and regulatory pressures on the banks.

Production shutdowns compound supplier liquidity problems because customer payments lag production by two months, meaning that low

cash receipts from shutdown periods must cover the high cash expenses required for normal production levels. During normal times, cash generated during the shutdown period and available credit lines is sufficient to cover this problem for model changeover and other short duration shutdowns. Recent shutdowns have been to cut excess inventory and are much longer in duration. This, combined with a banking system that is not in a position to provide the additional credit, creates the potential for a chain reaction of bankruptcies and supplier failures that could significantly impact entire automotive supply chains.

Standard tools for risk management use historic financial information and are therefore not good predictors of financial distress in rapidly changing environments. They also tend to not take certain macro conditions, like changes within the credit markets and banking sectors, into account when predicting supplier insolvencies. This likely means that auto manufacturers will be faced with much larger numbers of supplier workouts with less warning and time to react.

Another challenge for auto manufacturers is financing for supplier workouts. Established financial support tools are likely to not be sufficient with bank credit still very tight. Additionally, managing new types of financing for large numbers of suppliers, potentially including certain sub-suppliers, could create problems for auto manufacturers that do not have a captive finance company that provides financing to its supply base.

It is important that auto manufacturers assess their supplier risk in the context of the current environment and put together a plan for addressing the large number of supplier workouts, including formalizing the financing tools necessary to support suppliers during the consolidation process.

### Supplier Financing

Financing within automotive supply chains is difficult due to the wide variety of assets that need financing and the length of time from expenditure to payment. Each type and layer of automotive supplier within the chain faces financing challenges that are difficult during good times and almost impossible during bad times.

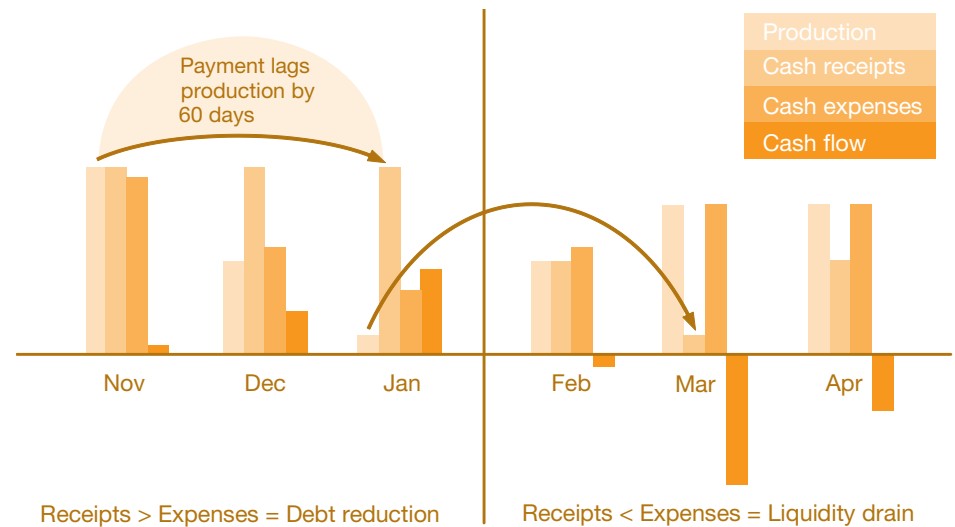
The credit crisis eliminated many credit instruments used by lenders to offset risk, including credit default swaps, receivable puts and credit insurance. The combination of increased risk, new risk-based capital requirements and a general fear of how the auto consolidation will play out has resulted in a sharp decline in available supplier credit.

Supplier liquidity is also being strained by unusual production shutdowns like the December/January period, Chrysler's shutdown after entering Chapter 11 and Honda's four-month shutdown in the UK to reduce inventory. The following diagram illustrates the liquidity drain these shutdowns create:

### Liquidity Drain

The debt reduction during production shutdown is normally reversed when production resumes. However, supplier credit is so tight that the current debt

reduction is often made permanent by the banks and not released to finance the production startup, creating sharp drains on cash reserves.



Source: PwC Analysis

Declining production volumes also hurt suppliers that otherwise have ample liquidity, but have credit facilities with bank covenants that are violated by the effects of lower volumes. While suppliers downsize operations to reflect lower production volumes, they often generate operating losses that negatively affect various covenants tied to earnings, such as times interest earned and debt to earnings multiples. These covenants are typically waived or renegotiated during normal credit times. However, a banking community looking to reduce auto exposure can use the covenant violations as a way to trigger loan accelerations and/or defaults that in turn could create a credit crisis for even those suppliers that have ample cash on hand to otherwise fund their consolidation.

### Case study 1: Supporting US-based suppliers through Original Equipment Manufacturer (OEM) restructuring

General Motors (GM) and Chrysler faced production disruption from suppliers that were either unwilling or unable to ship due to the uncertainty of payment. Credit insurance could provide payment assurance for suppliers unwilling to ship, but would fail to provide cash flow for suppliers unable to ship. A standard quick pay program could provide cash flow for suppliers unable to ship, but would charge unnecessary expense to those suppliers that have sufficient cash flow. It was decided that a modified quick pay program would be an appropriate solution for the industry.

The US Auto Supplier Support Program starts with the creation of a special purpose vehicle (SPV), owned by the Original Equipment Manufacturer (OEM) and funded by the US Treasury, which is the purchaser of receivables. The SPV pays for purchased receivables either immediately for a 3% discount, or upon maturity for a 2% discount, with the latter is more akin to an insurance program because cash is not accelerated. Citibank provides the servicing and cash management for the program.

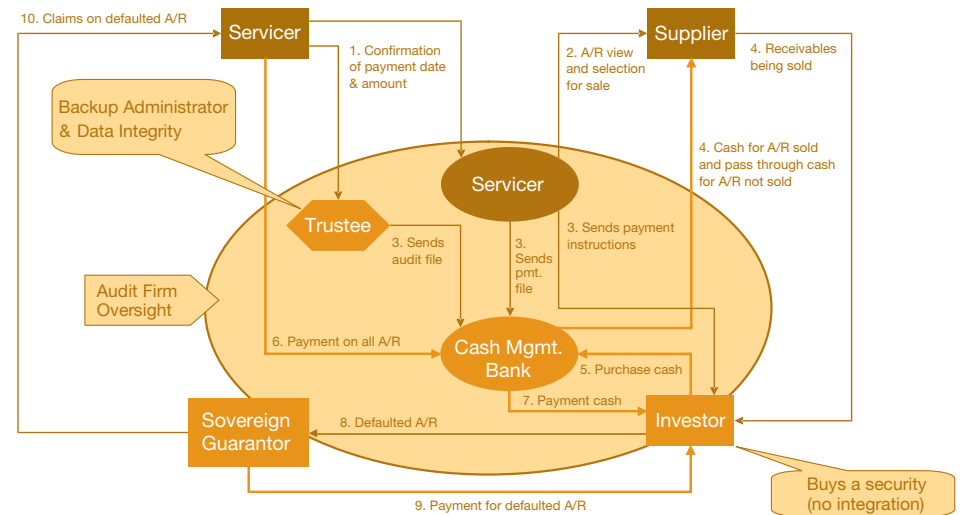
The current program has several structural problems that could create unintended consequences as follows:

Structure	Potential issues
OEM determines supplier eligibility	Side deals, undue influence & unclear selection criteria
OEM determines supplier participation level	Undue Treasury risk & supplier need mismatches
OEM controls receivable accounting	Inappropriate credits, payment delays & offsets
Supplier issues reps & warranties	Inaccurate records, lien issues & unreported breaches
Citibank sets up & manages suppliers	Errors, quality problems & compliance
Citibank reporting uses only OEM information	No third party authentication & control
Supplier self governance—no compliance checks	Unreported breaches and accounting discrepancies

Source: PwC

A way to increase transparency and ensure the program functions as intended is to engage an independent oversight body. This is especially important if multiple OEMs, geographies, servicers, or guarantors are incorporated into one program.

### PwC recommended approach



Source: PwC

A sovereign guarantor could decide which OEM it wanted to guarantee, the aggregate amount of the guarantee, the suppliers that could participate in the program and the amount of guarantee allocated to each supplier. The trustee adds servicer redundancy and protects against error or fraud. The cash management bank(s) handles payment processing in the various regions the suppliers reside. Transactions are packaged into securities that are sold to investors to increase liquidity and keep pricing at a minimum. Various derivatives can also be used to manage any sovereign or foreign exchange risk.

## **Case study 2: Europe: differences in markets, performance, and support**

The European Union (EU) is one of the world's largest producing regions of motor vehicles, producing approximately a third of the world's passenger cars. Automotive production is uniquely linked with other sectors, including chemicals, electronics, mechanical and electrical engineering, information technology, plastics, rubber and steel in respect of trade volume, cross-border supply chain and number of states. Some 2.2 million people are directly employed in vehicle manufacture in the EU, with 10 million indirectly employed. Further, car taxation in Europe contributes 4.1% of the region's GDP and the industry is a net exporter making a 40 billion net trade contribution. With a European production volume of 21.9 million vehicles in 2007 falling to 20.78 million in 2008, and a further significant fall likely for 2009, the downturn in the automotive industry has a strong impact on many sectors and EU member countries.

The significant reduction in production levels and subsequent cost-cutting by individual companies has already led to negative employment effects. In the final quarter of 2008, some 33,000 jobs were lost in the automotive manufacturing sector, which saw the sector the most heavily restructured sector even ahead of retail. The reduction of employment is different depending on region, member states and geographic concentration of the automotive industry.

**As a major consequence, individual member states tend to take different actions and measures based on their political powers, upcoming elections, culture, economic strength and impact on employment.**



## European Industry Stimulus—What is the best approach?

### EU Stimulus Outlook

<i>Short term effect</i>	<i>Short-mid term effect</i>	<i>Mid-long term effect</i>
<b>Stimulate the market</b>	<b>Help the industry</b>	<b>Prepare the future</b>
Provide incentive and/or ease credit restrictions to stimulate sales	Provide cash to the industry via loans or direct investments to soften the liquidity issue€	Encourage emerging technologies by financing their development (loans, funds)

Austria	■	Up to €1,500				
France	■	€1,000	■	€1bn in credit guarantees	■	€6bn loans linked to new product investment
Germany	■	€2,500	■	To be announced		
Italy	■	€1,000–€3,500				
Portugal	■	Up to €1,250	■	€500 m trade credit insurance and credit line for exporters		
Slovakia	■	Up to €1,500				
Spain	■	€2,000 (from gov, regional gov and OEM)	■	€800m towards plant upgrades	■	€1.27bn towards infrastructure and research projects
Sweden			■	€2.3bn credit guarantees and rescue loans	■	Up to €300m for an R&D centre
UK	■	£2,000 (£1k + £1k from participating OEM)	■	€1.3bn of loans directed from the EIB	■	€1bn related to investment in new technology

Source: PwC Analysis

The European Commission has laid out key elements of public support with clear objectives. However, the measures are developed, communicated and administrated by the individual member states. Two major measures deserve to be highlighted: First, twelve member states established vehicle recycling and recovery schemes in order to boost demand for new vehicles and accelerating fleet renewal (e.g. “scrappage premium” in Germany). Second, in most markets in Europe, short work has been extended for many employers to two years which allows the companies to maintain the workforce at lower cost and reduce the overall number of layoffs. Both measures are considered to be effective.

**EU member states set up programs of financial aid including governmental guarantees, but struggle to a certain extent with complexity of the conditions as well as the acceptance of the companies and the difference in expectations about the deliverables by the companies.**

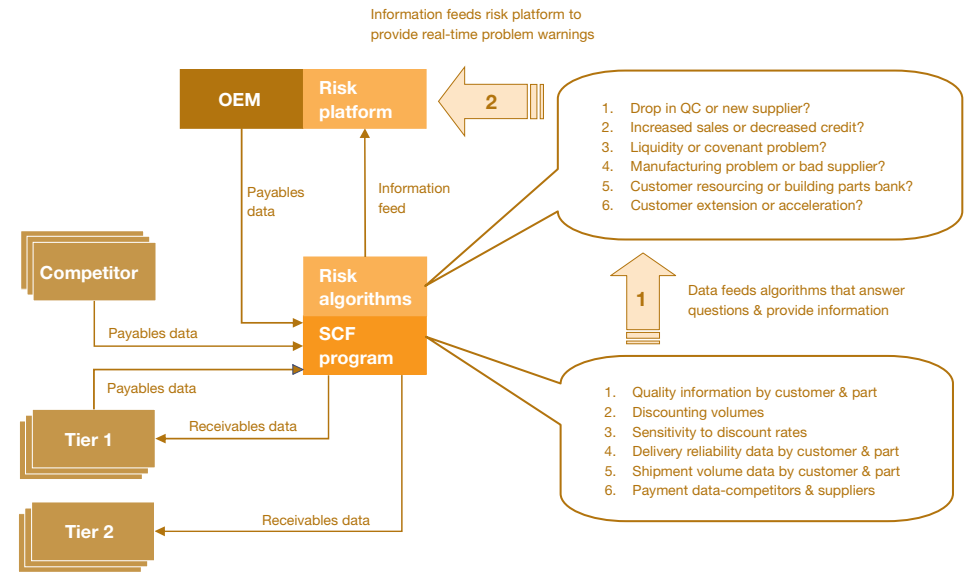
In general, European OEMs do not face “high noon” as the North American manufacturers do, with stronger performing OEMs following a clear core business strategy, and others working on attracting strategic investors or investigating mergers in order to gain more volume and competitive advantage during and after the crisis. In the EU, market participants together with institutions are less coordinated on a local or cross border level when it comes to dealing with potential supplier consolidation effects—principally because in the region there is not one concentrated automotive hub. With the lack of a single concentrated automotive hub, a consequence of the presence of several “national champion” OEMs, the risks to the automotive value chain from an interruption in supply due to the failure of a major OEM or supply are less pronounced than they are in the US.

In contrast to the situation in the US, the EU and its member states, with very limited exceptions, have been hesitant to give direct cash support to the suppliers or OEMs—due to state aid rules and potential distortions to competition that will arise from giving aid. Any direct support has to be seen to be equitable and prove on a cost-benefit basis that a member economy will derive benefits far in excess of the economic, social and competition costs of letting the market decide. As the banks are still strongly focused on risk reduction, and the OEMs are very selective in supporting automotive suppliers with cash incentives, most of the suppliers have already changed to clear cash steering of the company, combined with short working, salary cuts and rigid cost reduction programs, including plant closings outside of Europe and as well in the States where they are headquartered. A significant struggle with lay offs in Europe is that in general social plans are very expensive and result in a high cash outflow right at the beginning of their implementation.

In contrast to the situation in the US, most individual automotive companies do not receive significant aid provided by central institutions or committees or any other European-wide programs. European as well as local funds which already existed before the crises still follow a case-by-case strategy to allocate financial support. However, it is apparent that the depth and extent of the current economic crisis has tested the clearly defined boundaries.

### Supplier Risk Management and workout practices during industry consolidation

Supplier risk management programs generally leverage dated financial information to feed risk scoring to predict supplier failure. This methodology is not effective during times of crisis because it does a poor job of predicting current liquidity and availability of credit; i.e. there is little warning of a supplier knocking on the door requesting cash to avert a shutdown. Successful companies will incorporate supply chain finance data into their risk algorithms to better predict supplier failure.



Source: PwC

Companies with even a robust risk management program could likely face more supplier workouts during consolidation than existing personnel can manage. Professional services firms specialized in auto supplier workouts should be retained to handle the overflow workout activity.

The large number of supplier requests for accelerated payment, advances for materials purchases and direct loans may also be more than existing personnel can safely manage, and may be more than treasury can fund during periods of tight credit. Manufacturers that do not formalize this function risk problems in the current environment because of the large numbers of simultaneous workouts and the need for greater financial assistance than normal. One way to formalize some of this function is to implement supply chain finance (SCF) tools to alleviate some of the financial stress and provide a way to ensure financial support is directed to manufacturer interests. SCF is a way to ensure

sub-supplier payments, fund future development and lower raw material costs by leveraging third party banking professionals to safely control the funding. Guarantees from sovereign bodies are a way to increase SCF beyond the credit capacity of the manufacturer. Another approach is to leverage a captive finance company, either existing or newly created, which provides lending professionals more suited to control this activity than purchasing personnel. A captive finance company may even be essential for situations where manufacturers are split between good and bad companies to ensure that supplier funding is tied appropriately to manufacturer objectives and not the liquidation timelines of independent financial institutions. Captive finance companies may also leverage sovereign guarantee to increase credit.

## Summary

A rapid consolidation in the automotive supply base will create challenges for manufacturers that will likely require new tools and methodologies to ensure a reliable supply base and adequate resources for future development. “Best-in-class” companies will quickly adapt existing capabilities to not only react to the quickly changing environment, but to use it as a competitive advantage against their competitors.

PricewaterhouseCoopers suggests that manufacturers perform stress testing of their existing supplier risk management and workout capability to identify potential weaknesses, as well as develop an action plan for various scenarios. PwC also recommends that finance professionals review existing methodologies and incorporate the appropriate financing tools to ensure a strong financial supply chain able to fully support future production and development needs.

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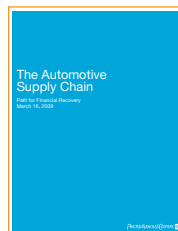


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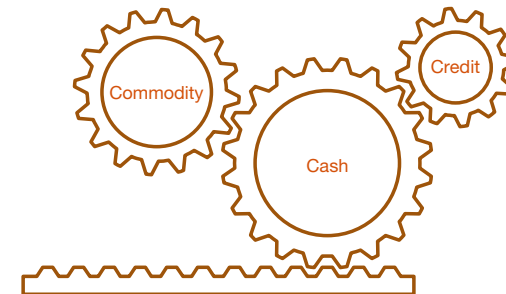
## Further recommended reading



The Automotive Supply Chain



# Managing triple C risk: Designing, implementing, and running efficient treasury solutions at automotive companies



Source: PwC

Treasury organisations in the automotive industry should ensure that they are ready to cope with the current market environment

The automotive industry is still struggling from the impacts of the financial crisis while financial markets are still in turmoil, showing only weak signs of recovery. During these times, it is important for chief executives of leading Original Equipment Manufacturers (OEMs) and component and system suppliers to manage their “triple C” (cash, commodity, and credit) risk. While they need to focus on cash and liquidity first, they also should monitor their commodity and credit exposure. This is an important step to protecting their operations against the threat of insolvency and ultimately filing for bankruptcy protection.

## This is the time to set a strategic lead

Early and efficient planning and preparation, both strategically and operationally, is necessary to help auto-makers and suppliers get back into the driver’s seat and manage their risks and exposures effectively. Potential prerequisites for reaching this goal are to integrate the treasury, accounting, and controlling functions; establish transparent, sustainable,

and standard processes; and implement the right skills, tools, and techniques in the process.

Top OEMs and suppliers should develop treasury solutions that comply with current business needs and regulation frameworks; especially International Financial Reporting Standards (IFRS) or US Generally Accepted Accounting Principles (US GAAP). In this article, we introduce some solutions that have helped automotive companies overcome the challenges of managing triple C risk.

## I. Cash and liquidity—Only reliable, standardised and high-quality planning processes protect against the failure to pay

It has been said that cash is king. To survive the times where cash and liquidity are not readily available as they were prior to the current crisis, it is essential to understand a company’s exact cash position and the short-term availability, both on a group and single-entity level. The cash position of a company also should reflect all currencies held and used in daily operations.

The cash position provides a view of a company's finances on a short-term horizon (one to three days maximum), and the level of liquidity on a revolving 90-day basis is necessary to safeguard the overall goal of securing the solvency and ability to pay at any time.

In general, the treasury function is responsible for monitoring and managing cash and liquidity. To curb risk, it should gather all the data needed and make sure it is accurate. In addition, treasury function should evaluate the impacts from changes of Foreign Exchange (FX) conversion rates and interest rates on the short-term cash position as well as on the mid- to long-term liquidity position. Simulating specific scenarios and stress selected cash positions is helpful in this regard.

A web-based and risk-oriented liquidity navigator can be an effective tool that can be customised or developed especially for the needs and realities of the automotive industry, combining functionalities such as:

- Continual and revolving 13-week planning on a daily basis
- Standard interfaces to (ERP) systems
- Simulations, scenario analyses, and FX risk measurement tools.

Further on, this tool should be designed to capture automotive specific cash flows from refunding activities such as Asset Backed Securities (ABS), Asset Backed Commercial Papers (ABCP) funding, regular medium-term note, and commercial paper-funding. It should feature the capability to include cash flows from bond payoffs and potential drawdown on financial guarantees (as issuer and as holder). Data derived from the ERP or treasury management system, such as maturities, early settlement of financial transactions, and financial instruments, can be included in the planning process. The planning and the scenario analysis should be possible on an FX-differentiated basis to manage FX cash flows and conversion impacts.

**Key facts:**

- Highly customizable web-application for group-wide planning of liquidity
- Standard set-up: 13-week continuous planning on a daily basis, thereafter monthly for up to 3 years (can be adapted to individual clients' requirements easily)
- Interfaces with ERP, Consolidation and Treasury systems. As far as possible automatic data feeds from existing systems; other data gets entered manually in the web-client
- Various data entry and analysis layouts as well as consolidation levels
- Splashing function significantly reduces efforts for manual data entries
- Actual ↔ Budget and Budget ↔ Budget deviations
- Scenario analyses
- Changes to the tool (e.g. planning categories can be implemented directly by the finance/treasury department)

Source: PwC

Such a solution delivered in an underlying technical platform may eliminate some of the more common shortcomings of manual solutions while maintaining its flexibility and ease in developing applications. It should combine the efficiency of Excel with the advantages of web applications that can be potentially difficult to develop. Furthermore, the functionality of the solution should cover easy-to-implement workflows, log reports, and a specific user-rights concept. The data entered through the web can be stored and archived in a web-accessible database to bring treasury in the position to do historical validation checks, analyses, and reconciliations. These functionalities will be essential for a solid back testing of assumed highly probable cash flows.

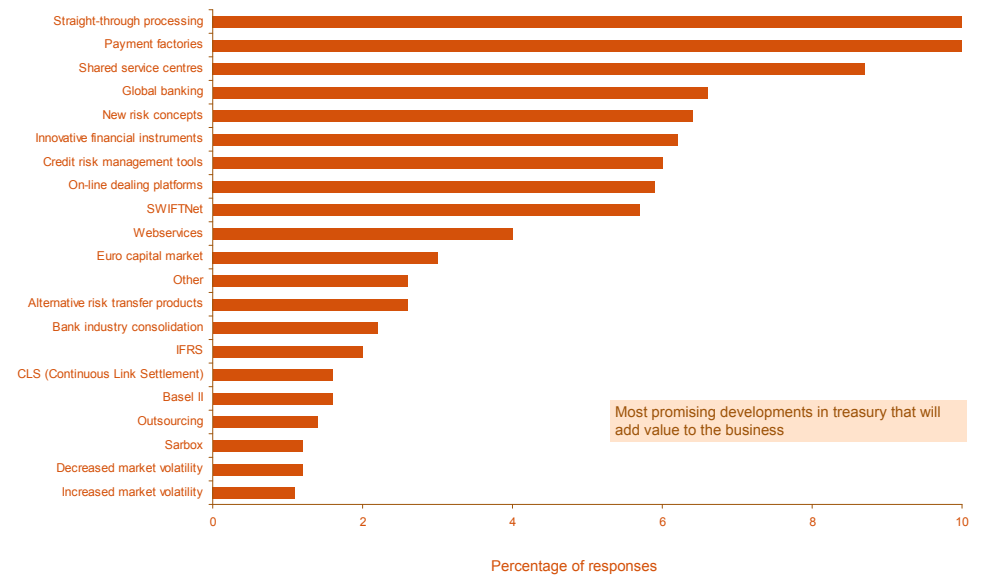
### Make the value connection—the introduction of global treasury platforms systems

Next to liquidity planning and cash management, automation and centralisation aspects should be taken into consideration while implementing and structuring a leading edge treasury function. The role of treasury Information Technology (IT) was clearly highlighted by international OEMs and suppliers over the last several years. Current developments such as in-house banking, payment factories, inter-company factoring, and straight-through processing, were seen as promising areas for development, as the results of the PricewaterhouseCoopers (PwC) Germany Treasury Management Group’s 2006 European Treasury Service Report show.

According to the study, optimal use of treasury technology and creating a fully integrated environment were ranked top amongst areas that add value in treasury management. Major benefits include significant efficiency savings, enabling treasurers to redeploy scarce resources to more value-added activities.

Many innovative players in the automotive industry have started to implement integrated global treasury solutions. The point of departure is usually a heterogeneous system landscape using non-standardized, non-integrated processes that have been developed over several years. Manual efforts and

extensive reconciliation procedures, predominantly the use of spreadsheet applications, lead to high cost and lack of transparency. This is especially true on a group level, where various and incongruent data must be reconciled for accurate reporting.



Source: 2006 PwC Germany European Treasury Service Report

Often times, decision makers such as the chief financial officer or the group treasurer rely on assumptions and instincts to make strategic decisions. This situation worsens if brands, producing entities, sales companies, and the financial service organisations follow their own rules and have their own governmental framework. At this point, OEMs must begin to analyse their processes, their current and future needs, cost drivers, and the risks and pitfalls in such relying on such an approach. Such analyses should be supported by benchmark procedures and internally or externally available best practices.

## Global Treasury Platform(s)

### Value Driver for efficient and effective treasury processes and finance functions

- The role of Information Technology was clearly highlighted by German car producers in recent years. Current developments, such as in-house-banking, payment factories, and straight through processing, were seen as promising areas.
- The optimal use of treasury technology, creating a fully integrated environment, were ranked top amongst areas which add value in treasury management. Benefits include significant efficiency savings enabling treasurers to redeploy scarce resource to more value-adding activities.

### Point of departure

- Different treasury management systems (TMS) and/or spreadsheets at central treasury or regional treasury center across the globe in place
- High licence fees and administration costs
- TMS do not meet functional treasury needs
- No payment factory- and in-house-bank functionality
- Low transparency related to global cash position and risk exposures
- Group internal and external payment transfers caused high costs
- High degree of manual processes
- High costs (esp. Human Resources)
- Low control reliance

### Value Drivers (from cost reduction to value creation)

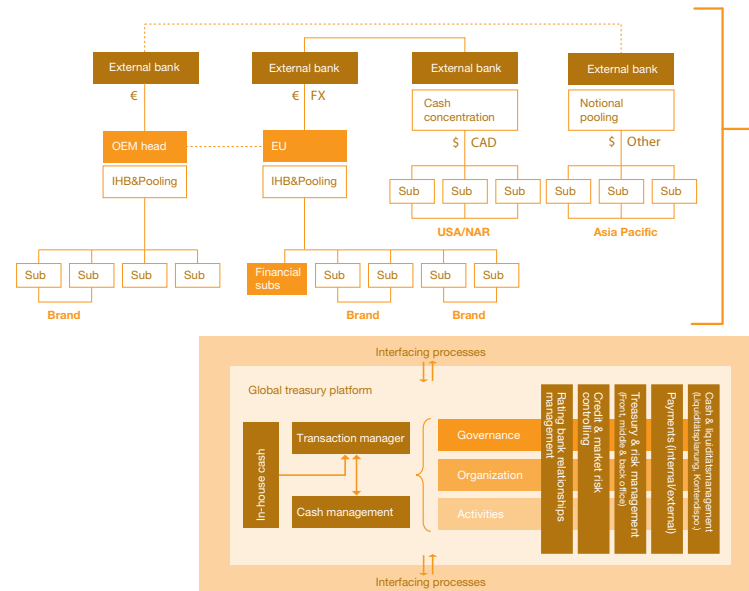
- A single database with standardised interfaces reduces IT administration costs
- Remarkable reduction of external payment transfers and bank accounts by implementing the in-house-bank concept
- Significant cost reductions in treasury organisation by automating and standardising global treasury processes
- Higher transparency and accuracy of cash position and risk exposures enables treasury to optimise risk strategies
- System vendors added and adjusted new leading edge functionalities like payment factories, in-house banking and hedge accounting and
- SWIFT network pens new access solutions for corporates

Source: PwC

## Case study: Implementation of a highly automated and centralised global treasury platform

One potential leading-edge solution was a global treasury platform implemented at a Top 10 global OEM. The platform was built using the SAP treasury application with its cash management, in-house cash (including a payment factory using the Society for Worldwide Interbank Financial Telecommunication (SWIFT) network), and transaction management modules. Total implementation time could be stretched over several years and would encompass time for replacing legacy treasury management systems, establishing a regional treasury centre structure, and introducing automated, efficient, standard, and homogeneous processes and user training.

While the OEM solution discussed above is based on the most common systems, other treasury system vendors have recognised the warning signs of the current environment and have upgraded their solutions with in-house bank, cash management, transaction, and accounting/reporting functionalities.



Source: PwC

## Key success factors

Key success factors for realizing value include the calculation of a reliable business case that analyzes the OEM's current situation and the areas of cost reduction and value creation, the comprehensive technical and functional design of the future system application, and the implementation of strong change management practices. Going forward, the OEM is in the position to clearly define the desired processes and functions within the global treasury and finance function, renew and adjust existing treasury guidelines and governance, reorganise treasury processes, and train its people.

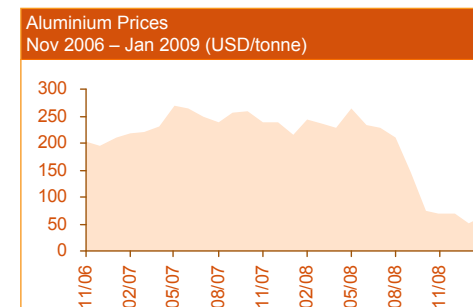
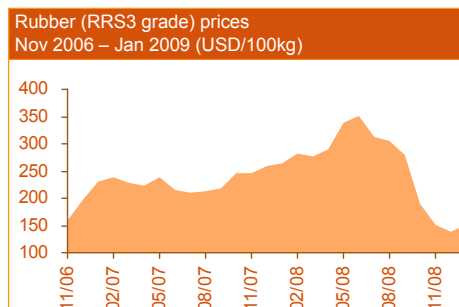
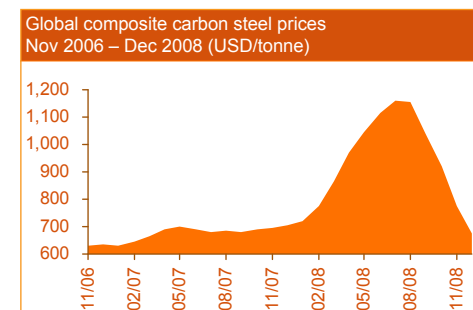
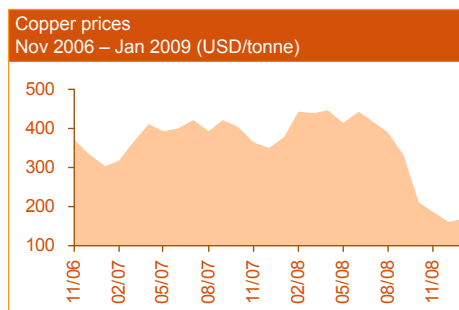
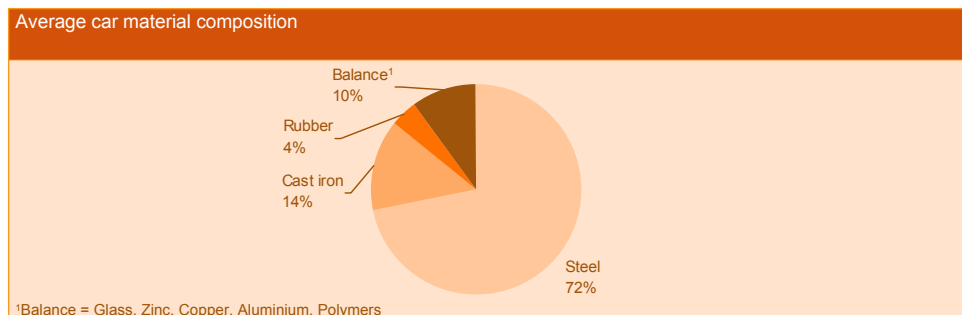
Global harmonisation of internal and external payments is key for a multi-national OEM or supplier, now and in the future. Since quick returns on the investment are highly likely, taking no action may mean risking opportunity.

## II. Commodity: Complexity is no excuse for not taking action

Commodity markets are characterised by high volatility and complex dependencies, which has been exacerbated by the latest financial crisis. As OEMs and top tier suppliers are still dependent on the supply of typical automotive commodities such as alumina, copper, noble, and other base metals, steel and electricity, there is currently no standardised approach to the collection and analysis of commodity specific exposures.

## Commodity & energy price instability

Automotive suppliers are facing years of uncertainty regarding the costs of basic raw materials, energy, and even labour costs. Ironically, after several years of rocketing prices, the crisis has tempered demand for raw materials. Sadly, few suppliers will benefit because futures hedging locked them into higher contract prices.



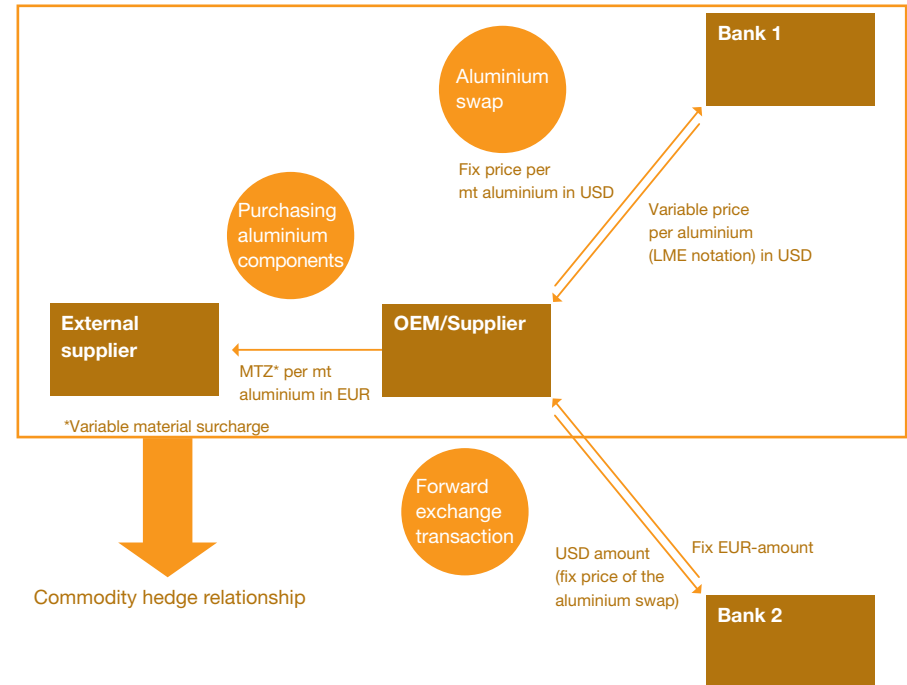
Source: PwC Automotive Institute Q1 2009 Analyst Briefing, EIA, Indian Government Rubber Board, Ashby & Jones, Engineering Materials 1, MEPS International Ltd, DJIA, S&P 500

Companies should first know their specific commodity risks to monitor and manage them. While in other industrial manufacturing sectors commodity price risk can be transferred to suppliers by negotiating fixed prices for supply, this is not possible in the automotive industry. OEMs are therefore required to mitigate or hedge these risks themselves. Manufacturers face the challenge of forecasting highly probable commodity consumption and the related commodity purchase. The validity of such data is supposed to be the basis for the procurement department to renegotiate long-term supply contracts (especially with regard to the variable commodity price surcharges and other variables such as conversion cost and freight). The forecast could impact the purchasing strategy.

## A forecasting ability and the underlying accurate, transparent, and comprehensible forecast processes should be built to reduce production costs.

Because OEMs and major tier suppliers do not regularly purchase commodities directly (for example, alumina coils) but instead purchase parts that contain a portion of the commodity used (such as aluminium cast components), the forecast process becomes complex and difficult to validate. OEMs that do not use US dollars (USD) as their functional currency should account for commodity prices that often have an FX-dependency because commodities are still mostly traded and quoted in USD.

### Example for an underlying hedging relation



Source: PwC

Although an accurate forecast process is essential to hedge the commodity exposure economical, a complex and traceable standardised exposure evaluation and reliable forecast is required to transfer economic reasonable hedging into hedge accounting.

## Hedge accounting is necessary to avoid volatility in the profit and loss statement (P&L).

A high P&L volatility can be considered a sign of insufficient degree for hedging and/or limitation of risks, and it also creates uncertainty and increases the risk premium for potential investors.

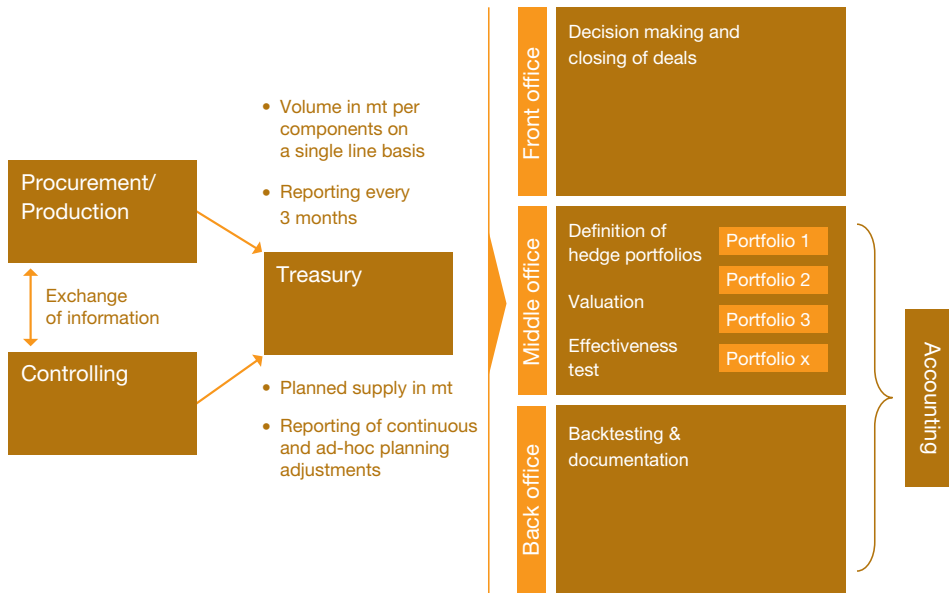
To facilitate the requirements for an IFRS/US-GAAP compliant hedge accounting method that adhere to the strict and complex rules of IAS 39/SFAS 133 (SFAS157) are met, OEMs and suppliers should integrate the relevant processes from procurement or controlling functions to treasury and accounting. Solid process integration can facilitate identification of dependencies and that the parameter, data, and prerequisites for hedge accounting will be in place on a timely basis.

### Case study: Potential solution for commodity hedge accounting

Step 1	For starters, planned commodity supply and consumption and commodity volumes per component on a single-line basis, both in metric tonnes and per period, need to be identified. In addition, a reliable “highly probable” forecasted transaction quota is needed. These data should be re-evaluated and reconciled on a revolving three-month basis at minimum.
Step 2	The treasury function then compiles the data and structures a sufficient and homogenous hedge portfolio with high correlation between the risks of the single components within the portfolio required. Once the hedge portfolio is in place with a high correlation to a certain commodity (i.e., aluminium) the next task is to decide which financial instruments (such as derivatives) are required to hedge the portfolio exposure. When a portfolio is structured, one should make sure that contracts bearing risks that are not highly correlated with other contracts or risks in the same portfolio are eliminated to arrive at a highly homogeneous risk position. Subsequently, a test for homogeneity should be performed on a portfolio basis before final agreement is reached on the individual portfolio.
Step 3	Subsequently, the accounting department (through the treasury function) should designate the hedging instruments to the individual portfolio, and document the hedge relationship according to the requirements of IAS 39/ FAS 133 (i.e. formal hedge documentation). During the life of the hedge accounting relationship, ongoing requirements such as effectiveness-testing and ineffectiveness to be recorded in profit and loss should be performed. The assessment of the effectiveness (prospective and retrospective) of the hedge relationship is a key prerequisite to applying to hedge accounting during the hedge period. If the effectiveness test fails (outside of the effectiveness corridor stated in IAS 39/FAS 133), the hedge relationship has to be de-designated at that time, and future changes of the hedging instruments need to be posted through the P&L statement. During a hedge relationship, it should also be recognized that the high probability of hedge items must be secured and over- and/or underhedging should be avoided.

Source: PwC

## Requirements–Infrastructure of the hedge accounting process



Source: PwC

If an OEM or supplier successfully integrates these functions (from procurement to controlling; from treasury to accounting), establishes a dependable information chain, and understands the impacts from the accounting rules, commodity hedge accounting is an achievable goal worth attaining.

So why wait? Facing the challenge could lead to unexpected results.

### III. Credit: Long-held assumptions must be revised

Prior to the financial crisis, it was commonly unthinkable that a major bank or financial player could become illiquid or insolvent. Such an attitude has been tested in recent times. OEMs and suppliers must actively manage their credit risk and renew their assumptions to protect against imminent deficiency of their counterparties.

### Assumptions to the banking industry prior to the financial crisis and deviated managing approaches

There is always sufficient liquidity in the market; banks can always ensure their refunding

The probability of bank deficiency and/or insolvency is close to zero

The government always protects major banks against insolvency

Deposit guarantee funds are stable and protective in a financial crisis

Banks always have first class (AAA) ratings (S&P, Moody's)

Corporates can rely on external credit rating; alternative or additional rating won't be required

The management of bank related credit risk could be neglected by corporates

### Experiences with the banking industry in the course of the financial crisis and deviated managing approaches

➤ Insolvency of Bear Stearns and Lehman Brothers; even countries could be deficient

➤ Long lasting declined liquidity in the market, decrease of creditworthiness of banks

➤ High distrust amongst banks cripples securing of re-financing activities; Central banks are only limited able to safeguard liquidity

➤ Thin capitalization at banks; worsened basic conditions for capital expenditure; Stress-tests show high risk potential at leading banks

➤ Banks are dependent on governmental supports and financial parachutes

➤ Rating of Big-3 rating agencies are unreliable; early warning indicators are not reliable

Corporates now focus on bank/ counterparty credit risk management. New analytic approaches to active manage credit risk are required

Source: PwC

Actively managing counterparty credit risk is only one side of the coin. One's own credit risk also should be monitored.

Generally, funding costs are mainly driven by the interest rate established by the investors. The interest rate to be paid implies two components: the risk free rate (inter bank rates such as LIBOR or EURIBOR) and the risk premium (i.e., the credit spread). In the event that the credit spread increases,

for example due to lowered ratings, the interest rate increases. Credit spread and credit risk monitoring is important to protect against sudden impacts from the (re-) funding process. Automotive specific transactions such as ABS/ABCP funding and credit-linked bond issuance are especially sensitive to the increase of credit spreads.

### Improvement and adjustment needs

Acknowledging that the automotive sector in general has yet to recognise the need for an active credit risk management programme, the need for improvement becomes apparent. Standardised approaches for a comprehensive active credit risk management are not common, and credit risk management often is not addressed in the risk framework as an integral part of treasury governance.

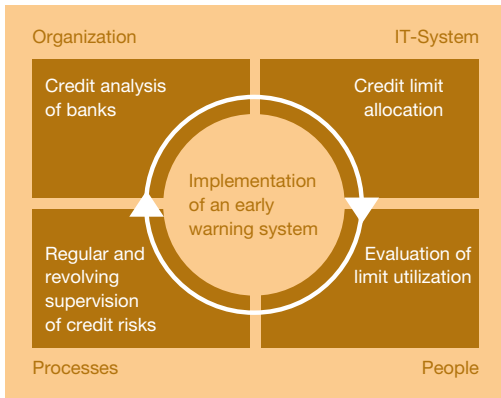
Points to consider include:

- Internal counterparty rating and scoring
- Information and data sourcing and definitions
- Evaluation of the key performance indicators and data sampling to generate reliable results

From these basic elements, an overall strategy and credit risk management process should be devised. Besides the aforementioned basic data, further observable market data such as credit default swaps (CDS) and their movements should be integrated into the analysis. A strong CDS increase (meaning that the holder or insurer demands higher risk premiums) of a counterparty signals that the counterparty's ability to fulfil its financial obligations is uncertain.

### From transparent credit risks to early warning systems

After considering the right credit risk approach, an early warning system should be implemented; and if one already exists, should be adjusted to respond to current market conditions. Limit allocations and limit utilisations should be taken into account.



Source: PwC

## Conclusion

Managing triple C risk in the automotive sector is challenging. However, potential solutions are available, and taking no action can result in missing an opportunity. While available cash and liquidity are important to survival in the current market environment, hedging commodity and mitigating credit risk are also helpful protect against the uncertainties of the financial markets and the respective impacts on the balance sheet and/or profit and loss statement. Companies unaware of these risks may be in a position of deficiency or possibly an unfriendly takeover.

PricewaterhouseCoopers Corporate Treasury Solutions Network has experience in designing, setting up, and implementing solutions that can help the automotive sector to overcome the challenges of managing triple C risk. We have supported Top OEMs and suppliers to develop the solutions that fit and comply with current business needs and the regulation frameworks, especially IFRS/US-GAAP.

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## Award



Recipient of the 2008 Innovation and Excellence Award by Treasury Management International

# The electric future of the automotive industry

## Introduction

The recent global economic downturn has had far-reaching effects on numerous industrial sectors, with the automotive industry suffering more than most. While many unknowns remain about when the industry will recover and what the long-term implications of this current crisis will be, some major developments are already beginning to take shape. Of particular note is the growing potential of electric vehicles, as evidenced by the numerous vehicle introductions by new and established manufacturers, as well as the heavy investment in battery technology and various support measures taken by governments around the world. The depth and speed at which electric vehicles will be able to penetrate the market will rely on several factors, but there remains little doubt that this technology will have a significant impact on the automotive industry.

## Growth Drivers

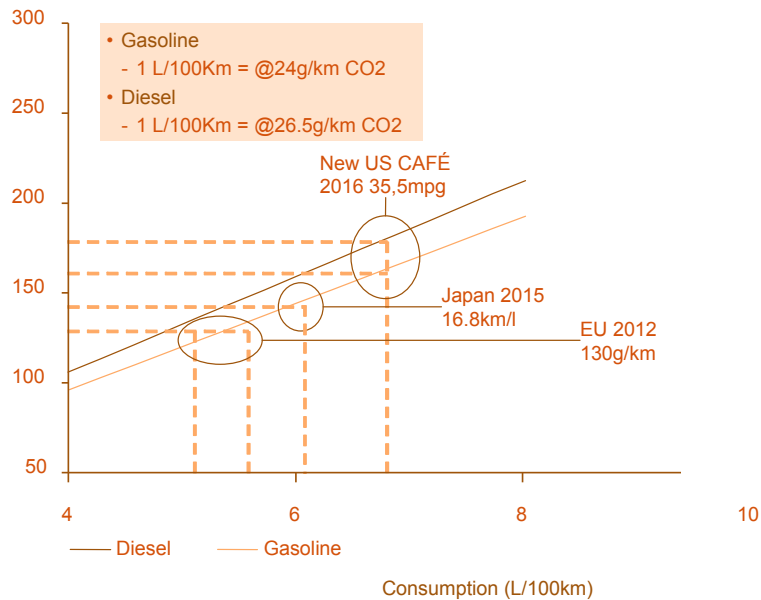
Climate change and the negative impact that various human activities can have on our ecosystem are among the inescapable challenges world leaders

are facing. While the issue of global warming remains highly debated, there is evidence to support the environmental impact of carbon emissions. The European Automobile Manufacturers Association (ACEA) estimates that the automotive industry is responsible for 15 percent of global carbon emissions, amounting to roughly 8 billion tons annually. Although environmental protection has been the primary driver for change, other factors such as the price volatility of fossil fuels and energy independence also have helped perpetuate a change to alternative and renewable energy sources.

Accordingly, many governments have implemented a wide array of policies aimed at reducing carbon emissions, some of which specifically targeting the automotive industry. In the United States, the recently proposed changes to the Corporate Average Fuel Economy (CAFE) standard, announced by President Obama, mandate a 30 percent reduction in carbon emissions by 2016. Some critics have protested that the new standard is too lenient. However, imposing such regulations in the midst of a massive market downturn, while R&D funding is under duress, is a sign to automakers that fundamental changes must begin to take place.

## CO2 (emission in g/km)

Consumption target by major market (US, Japan, and EU)



Source: PwC Automotive Institute analysis

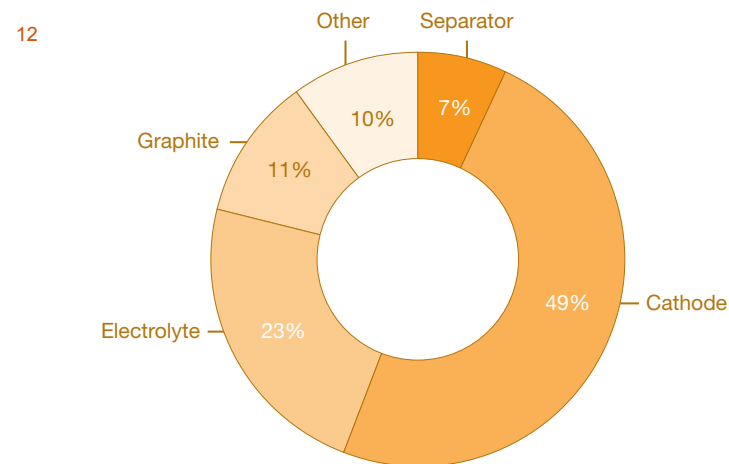
The European Union, widely seen as a leader in reducing automotive carbon emissions, has taken additional steps in setting a limit of 120g/km of carbon emissions by 2015, with 65 percent of new vehicles required to meet the standard by 2012. While other developed markets such as Japan are also enforcing tough emission standards, developing markets that have long lagged other regions in terms of enforcement are beginning to catch up and are adopting increasingly stringent emission regulations. Electric vehicles are seen as one possible solution automakers can focus on to meet increasingly stringent emission regulations around the world, since electric vehicles release no carbon emissions while running on electric power.

## Growth inhibitors

Despite the aforementioned benefits electric vehicles provide, several important challenges remain that may slow and/or impede the penetration that these vehicles can achieve in the marketplace.

The first issue is related to the technology surrounding electric vehicles. The main components of an electric vehicle are the electric motor and the battery pack that supplies the power to the motor. The main drawback in this setup is limited driving range due to relatively short battery life. Although certain types of electric vehicles include range-extending gasoline engines that act as battery chargers (known as plug-in hybrid electric vehicles, or PHEVs), pure electric vehicles, or PEVs, are solely reliant on the driving range that the battery pack provides. In response to this limitation, more powerful and efficient batteries are now being developed. Lithium-ion has emerged as a leading battery material for power, driving range, and price point considerations.

## Material cost for lithium-ion battery cell



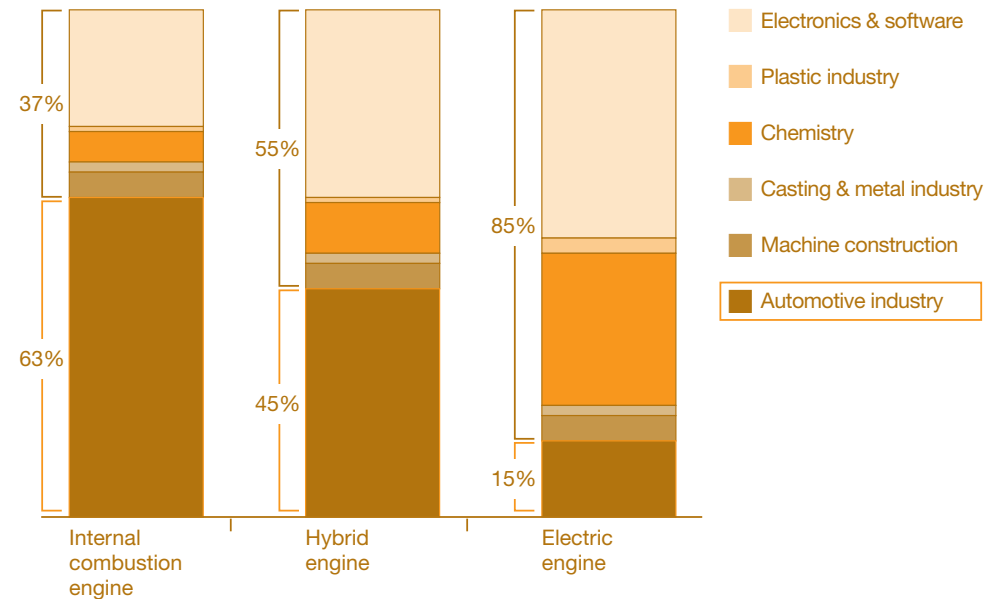
Source: Argonne National Laboratory (ANL), Umicore

Inadequate infrastructure also will delay a widespread shift to electric vehicles. The lack of an available network of charging stations restricts drivers to short commutes, while it can take several hours to fully recharge an electric vehicle. The space required to place charging stations, coupled with a suitable means for consumers to pay for the electricity they use while charging their vehicles, are open issues. Projects such as Better Place in Israel and Denmark, which provide infrastructures that enable electric vehicle drivers to quickly charge their vehicles, have achieved initial success, but significant start-up costs will be realised in creating large-scale networks.

Additional concerns remain about the effect electric vehicles will have on a nation's power grid. On this last point, a recent study published by PricewaterhouseCoopers PwC in Austria, titled *The Impact of Electric Vehicles on the Energy Industry*, concluded that the existing electricity infrastructure is sufficient to meet the anticipated demand, noting that vehicle recharge periods (which are usually at night) tend to coincide with off-peak consumption.

Because the concept of mass vehicle electrification is fairly new to the automotive sector, continued R&D funding is necessary to increase efficiencies and decrease consumer cost. Major automakers and suppliers typically allocate between 1.5 percent and 6 percent of revenue to R&D expenditures. Financial constraints brought about by the current recessionary trends will make it likely that automakers could make budgetary decisions that negatively impact electric vehicle development, and favour traditional and less costly vehicle development programmes that require less R&D spend and bring quicker payoffs.

### Know-how and production share by engine type (in %)



Source: Fraunhofer, BYD, PwC Analysis

With relatively new technology and low sales volumes, significantly higher costs will be incurred by consumers purchasing electric vehicles compared with vehicles powered by a traditional internal combustion engine. The cost differential can range from \$7,000 to \$20,000 USD depending on the type of vehicle under consideration. Most of this premium is directly attributable to the raw materials that comprise the vehicle's battery. The extraction of the active battery components such as lithium and graphite, as well as the manufacturing and recycling process, contribute to a large portion of the cost. An appeal to consumers is that the cost savings realised from using electricity rather than gasoline will amortise quickly enough to offset the higher transaction price.

Ultimately, consumer acceptance will determine the success of electric vehicles, so offering a positive financial proposal is necessary for achieving successful sales volumes. A briefing from PwC's Autofacts Group, *Plugging into Tomorrow's Vehicles*, states that consumers would accept a three-year amortisation period for the price differential. Under the current cost conditions, electric vehicles do not come close to meeting this time horizon, indicating that more work must be done to lower battery-related costs to successfully influence consumers' purchasing decisions.

## Facilitators

Aiding the emergence of electric vehicles is a matter best approached in terms of the push and pull factors that will bring the product to market. Pushing products to market requires accelerating development through continued R&D funding from both private and public sectors. Because R&D budgets are often the first to be cut during a time of financial crisis, governments are then left to play a role in providing financing solutions. Governments have several options to provide financial support, including low-interest loans, grants, and tax credits to assist companies in developing this new technology.

In terms of pulling products to market, governments have offered an array of programs to increase consumer appeal, such as sales tax credits, scrappage schemes, and tax refunds specifically for purchasing electric vehicles. While these government efforts are expected to assist electric vehicle development in the short term, the technology must stand on its own in the long term, as history has shown the negative effects of consumers relying too heavily on subsidised and incentivised products. Additionally, volatile oil prices assist in the appeal of electric vehicles, although high fuel taxes in regions such as the European Union (EU) have already helped to mitigate any major shift in consumer demand. Certain countries, such as France (nuclear) and Denmark (wind), whose energy mix is already largely disconnected from oil, have an additional incentive to favour the rollout of electric vehicles. Because fuel prices are expected to continue to rise, electric vehicles and other green technologies will become increasingly attractive to consumers.

## Industry changes

As vehicle electrification continues to emerge, significant changes within the industry are likely to happen concurrently with this rollout. In addition to the need for a network of recharging stations, fundamental changes to the traditional business model of automobile ownership should be considered as well. For example, some have proposed a battery swap program in lieu of waiting for a battery to charge. This brings into question the issue of battery ownership, which may open the door to business models based on fixed-price leases for batteries and/or entire vehicles. As the initial rollout of large scale electric vehicles seems likely to be initiated through public and private fleets, corresponding large-scale leasing models could be tested via this scenario.

Product development also could be affected by the introduction of electric vehicles. Resources previously allocated to gaining incremental or evolutionary efficiencies could be repositioned to accelerate the development of this technology, which is seen as revolutionary. Within this context, some electric vehicle manufacturers are beginning to capitalise on this opportunity, and new entrants that offer electric vehicles have also begun to emerge.

Now that the automotive manufacturer playing field has expanded, no traditional automaker has a significant advantage over another, which enables new entrants to compete. Additionally, suppliers of lithium-ion batteries and systems are expected to be in high demand as a large portion of current production capacity is currently allocated to supplying non-automotive sectors such as the computing industry. As a result of these developments, non-traditional suppliers that offer proven electric vehicle components will emerge within the automotive industry.

The changing geography of the automotive industry also represents an opportunity for traditional players in emerging markets. Chinese automakers, for example, understand it will behoove them to focus on developing electric vehicles rather than committing major resources to catching up on internal combustion engine standards.

The extent to which electric vehicles will be able to penetrate the market remains unclear, but the investment and support to date have been significant from public and private interests. Electric vehicles are widely seen as an important step in the advancement of the automobile.

Depending on the how all of these factors develop, PwC Autofacts estimates that by 2020, electric vehicles could represent approximately between 2 percent and 5 percent of the total output of light vehicles. On its face, this estimate might appear to have a minimal impact on worldwide sales volumes, yet this estimate should be understood in context to be fully appreciated. Use of electric vehicles designed for urban environments will likely be concentrated, at least initially, around major urban areas as part of the overall effort to reduce consumption of the world's energy resources.

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### Further recommended reading



The Impact of Electric Vehicles on the Energy Industry

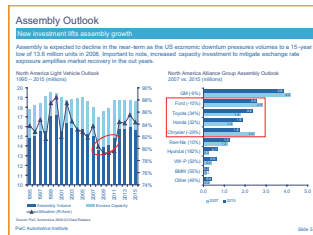


Electric Vehicles: Plugging into Tomorrow's Vehicles

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  - Fully integrated with PwC Global Auto Practice
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  - Risk management assessment & strategy
  - The embodiment of \*connectedthinking



**AUTOFACTS®**  
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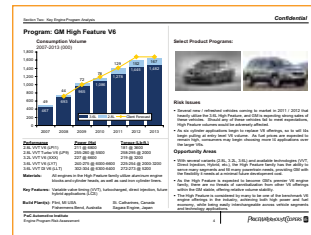
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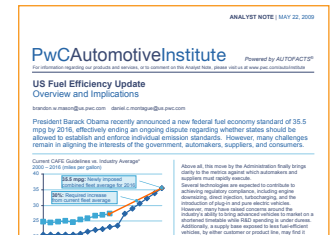
- Deep Regional Insights
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### Our Automotive Practice

More than 1,500 skilled PwC professionals comprise our global Automotive network, which is driven by eight Centres of Excellence to provide guidance, offer analysis, and deliver solutions to firms across the entire automotive industry value chain. AUTOFACTS®, PwC's industry-differentiating service offering, includes a global research team dedicated to delivering data analysis, assembly and capacity forecasting, and support to advisory services to our clients and their stakeholders.

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