

MARKET INTELLIGENCE

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State Highway Paving Report – Oman Data

Introduction

Concrete's market share in paving activity, as reflected in Oman data, has increased only modestly during the past two years. Oman data refers to state design bid build data that reflects only about 20% of total paving activity. The potential for stronger growth in market share in the years ahead is good. Concrete usage in paving is often correlated to its relative price to asphalt as well as longer term paving strategies. The relative price of concrete to asphalt is expected to move mildly in favor of concrete in the years ahead. More importantly, the federal government's commitment to FAST as well as the potential additions to infrastructure spending by the Trump administration both point to the possibility of longer term paving strategies.

Recent Evidence

According to the latest Oman data, 2016 concrete volume market share for the 2nd quarter was 12.7 percent, bringing the year-to-date share to 14.3 percent. Through the first half of 2015, volume share was only 13 percent. Due to a large fourth quarter in which 35 percent of the year's total cubic yards were let, year-end shares bounced back up to 15.2 percent. We expect a similar rebound for the remainder of 2016 as the second quarter has frequently been the lowest in terms of quarterly volume share. Despite the volatility from quarter to quarter, the average share has hovered around 15 percent the last four years¹.

Fix America's Surface Transportation Act (FAST)

Congress recently passed a new, five-year, \$305 billion surface transportation spending program. Of this figure, highways will receive over \$205 billion over the five-year period (beginning in 2016), increasing current spending levels by approximately 11 percent.

This increase will provide a sense of stability in contrast to recent funding uncertainty and should allow for more opportunities for concrete pavement projects. However, while the program increases nominal annual spending, real inflation adjusted spending is held roughly constant throughout the program at 2015 levels. Such restraint in spending is due largely to a faulty funding model.

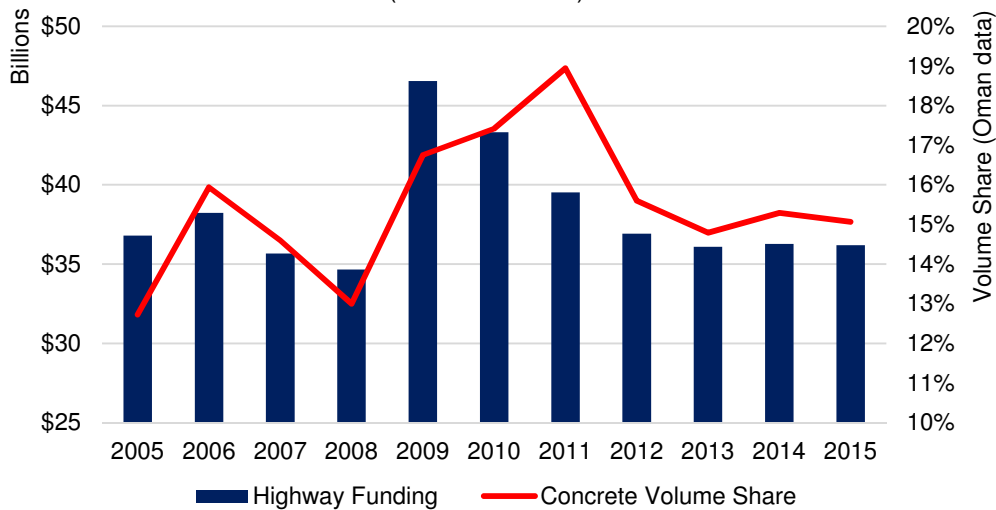
The highway trust fund is based on the federal fuel tax that has not been increased since 1993. There has been resistance by Congress to increase the fuel tax even in the context of inflation and gains in motor vehicles fuel efficiency. The highway funding model has increasingly relied on supplementary contributions from the general fund to meet spending obligations. Lacking a modification to the highway funding model, it is likely that future surface transportation programs will be constrained to modest increases in spending.

Oman highway data supports the idea that state highway use of concrete pavement increases with large injections of additional transportation dollars.

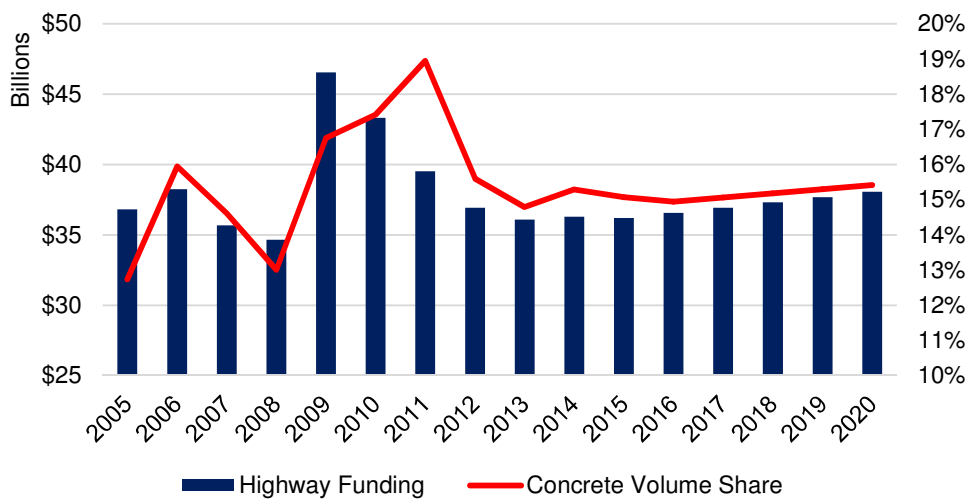
¹ 8 out of the last 12 years have shown the second quarter to be the lowest throughout the year.

States' general funds were rendered sparse during the recession, shelving much needed roadway projects. The American Recovery and Reinvestment Act of 2009 (ARRA) provided an injection of \$27 billion dedicated to such projects. Despite large amounts of sterilization by state and local governments, disbursements spread across 2009-2012 lead to marked increases for both concrete and asphalt use in many states. According to Oman data, concrete cubic yards on state highways increased 30.4 percent during ARRA years compared to the four years before, whereas asphalt tons increased only 4.7 percent. The number of concrete projects increased nearly 26 percent compared to an increase of 14.2 percent for asphalt projects. PCA believes this to be directly related to state DOTs increased fiscal capabilities to perform more new construction and large-scale reconstruction projects, which tend to favor concrete.

Available Highway Funding & Concrete Volume Share (Includes ARRA)



Concrete Volume Share Projections (FAST Act Only)



Without such large injections of transportation funding, states are forced to pursue more budget-constrained approaches which tend to mean quick-fix asphalt maintenance projects.

Consequently, at the national level, concrete's share of pavement volume increased from an average 14.5 percent to an average 17.5 percent during this time. Since the end of ARRA, this share has averaged 15 percent as overall highway funding has since returned to non-stimulus levels.

While predicting volume shares from Oman data presents many risks, we are able to at least see a moderately strong positive relationship with available highway funds. This figure includes the injection of ARRA funds over 2009-2012. Taking the total federal apportionments to the states for transportation work, the graph above shows a conservative prediction for concrete's share of paving volume out to 2020, which takes into account the increases from FAST. From current levels, PCA expects this share to see small gains over the next four years as highway funding gradually increases and the commitment to longer paving strategies materializes.

Trump's Infrastructure Plan

President Trump campaigned on the promise of massive infrastructure improvements. Based on PCA's latest forecast, there are three potential scenarios that affect transportation funding on top of FAST: Trump Face Value, Trump Lite, and Impasse. The differences in scenarios arise from the expected level of pushback from congress, ranging from minimal compromise to a complete pushback and failure to implement.

In the first scenario, dubbed **Face Value**, Trump's policy agenda proceeds without significant compromises. Trump's campaign promises for infrastructure investment ranged from double what Clinton proposed, or a total of \$550 billion over five years, to \$1 trillion over the same period. Averaging these two comes to \$775 billion spread over five years, which is then assumed to be refined down to \$500 billion, or \$100 billion per year, after congressional compromises.

Under **Trump Lite**, policy agenda proceeds but with significant compromises. The infrastructure spending is assumed to be further compromised down to \$275 billion over five years, or \$46 billion per year.

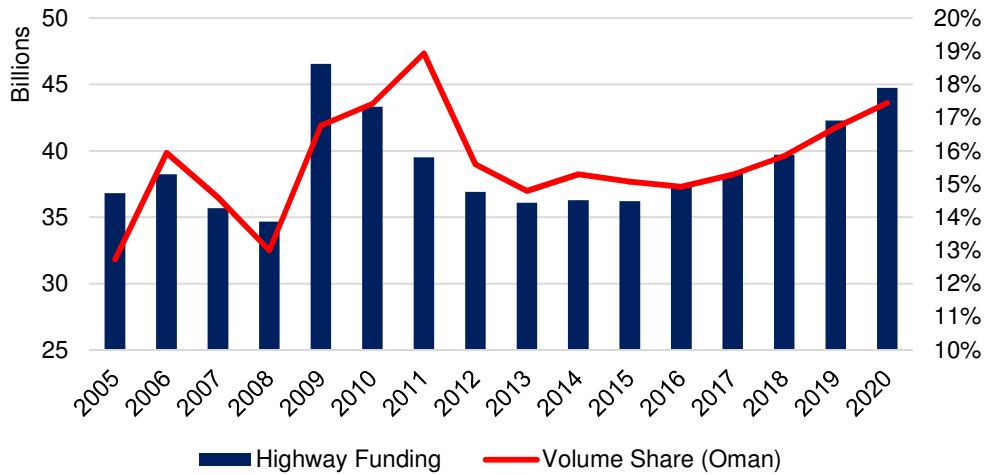
Under both Trump Face Value and Lite scenarios, spending is assumed to be allocated in a staggered fashion across five years beginning in 2018, and assumes 20% sterilization from state and local municipalities.

With the **Impasse** scenario, significant obstacles stand in the way of the policy agenda and there is no large-scale infrastructure spending program implemented.

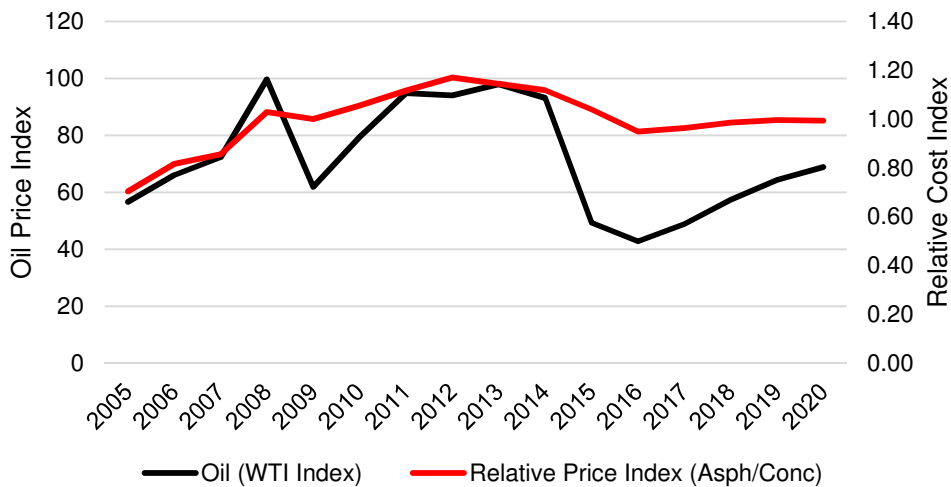
There is a great deal of uncertainty underpinning each of these scenarios. While the Impasse should have no effect on the previous projections regarding FAST, both the Lite and especially the Face Value plans will have significant effects on transportation funding. With the three scenarios posed for consideration, PCA assumes that a **fourth scenario** is also possible and is more likely. In this fourth scenario, the new administration foresees potential market and monetary policy responses that could occur that would send the US economy into another recession and pursues a more moderate approach to, among other issues, infrastructure spending. PCA adopts this alternative scenario for its baseline fall 2016 forecast.

According to this forecast, construction spending for highways increases by 2.7% in 2017, accelerates to 3.8% as Trump infrastructure initiatives materialize mid-2018 and accelerate further to roughly 6% in 2019-2020, before settling to nearly 4% in 2021. Using these percent changes, the forecasted increases for concrete's share then become more pronounced, potentially reaching ARRA-like averages up to over 17 percent by 2020.

Concrete Volume Share Projections (Trump Moderate Plan - PCA Forecast)



Oil Prices & Relative Cost (Asphalt Vs. Concrete)



While these projections show an increase in concrete share, it is important to remember that relative costs of paving materials also play a large role in how shares will react². During the ARRA years, asphalt prices were higher than they are today, at the time creating a larger relative cost advantage for concrete. Asphalt prices have since fallen due to the recent drop in crude oil prices, narrowing this relative cost difference to parity. With the EIA projecting a return to rising oil prices, this relative cost difference is expected to widen once again in favor of concrete, albeit mildly. More funding leads to more paving, benefiting concrete *and* asphalt. These positive concrete share projections are based on state DOTs' increased feasibility to let large-scale projects *as well as* an improving relative cost advantage. Without such a cost advantage, expectations for large share increases should be tempered.

² Relative cost projections are formed from the EIA's latest oil price outlook and the corresponding relationship crude oil has to asphalt paving costs.

Conclusion

In summary, on the national level, significant increases in transportation dollars have positive effects on overall paving and especially with concrete paving. The theory behind this points to the fiscal capabilities of state DOTs to perform more new construction and large-scale reconstruction projects which typically favor concrete, as opposed to more quick-fix asphalt maintenance projects that arise during constrained budgets.

Oman data, which measures highway paving activity at the state DOT level, shows this positive relationship to increased funding. In particular, during ARRA years, even with the significant levels of sterilization by the states, concrete usage increased significantly above previous averages. With the implementation of new funds from the FAST Act, PCA expects concrete volume share to rise gradually.

On top of the FAST Act, President Trump has campaigned on the promise of a large infrastructure investment plan. Several dollar figures were presented and PCA formed four scenarios based on different levels of infrastructure spending. The plan chosen as the most likely involves a more moderate approach to spending in the context of preventing an overheating of the economy, which could result in a recessionary response. PCA adopts this scenario as its baseline for the latest fall 2016 forecast. As a consequence of this plan, concrete volume shares are projected to increase more rapidly over the next several years, perhaps reaching levels as those during the stimulus years of ARRA by 2020.

There are of course risks inherent with these projections. Much of the risk arises from the uncertainty of the new administration's plans but also from the relative cost of asphalt compared to concrete. During ARRA, concrete held a marginal cost advantage over asphalt due in large part to historically high crude oil prices. With oil prices significantly lower today, it is no surprise that asphalt prices have also receded from their peak. However, currently asphalt and concrete prices remain very competitive. With the EIA projecting a return to rising oil prices in the coming years, this could lead to a relative cost advantage for concrete once again. While increased funding should benefit concrete, share increases will most likely be dampened if this cost advantage is not realized.

Through the first half of 2016, as current Oman data allows, concrete volume share holds at 14.3 percent, up from 13 percent at this time the year before. Although currently lower than annual averages, owing to the second quarter typically showing the lowest quarterly share, PCA expects the year-end 2016 volume share to be closer to the current average of 15 percent.

Appendix: What Does Oman Data Reflect

Data extracted from Oman Systems, Inc.'s BidTabs software are used to derive a proxy for concrete paving market share for a specific subset of paving activity, namely "state design-bid-build projects". These projects are "let", or posted, by state DOT's for private design, open to bid among competing contractors, and then built from the winning bid. DOTs document the details of these projects in what are called bid tabulations. Oman data, as it is often called, refers to the collection and organization of these tabulations. From this organized data, we are able to pull out quantities and spending amounts for both concrete and asphalt paving by state, thus a market share³ can be derived.

While Oman data provides good information on paving data within its scope, it represents but a slice of total paving activity as it reflects only work done by state DOTs⁴. It includes a small amount of state, county and local road information as there are a handful of state DOT's that operate on all roadways within those states; however, this is a very small sample. It does not reflect design-build or public-private partnership projects directly, but we are able to append a number of these through collaboration with local paving experts.

It is erroneous to suggest that the concrete paving tons and resulting market share performance reflect the total paving tons in a given state. It is likely, for example, that few FDR tons or other promotional efforts targeting streets and local roads are captured by this measure. Concrete market share paving gains or losses may have accumulated in these segments over the years, but are not represented in the Oman data. Considering concrete's likely low paving share in non-Oman measured market segments, it is likely that Oman data exaggerates total concrete paving share in any given state market.

Given these caveats, the purpose of Oman data is to provide a benchmark of concrete paving market share. Furthermore, it provides an assessment of progress in the only subset of paving activity that can accurately be measured on a frequent and reliable basis.

While there are a handful of states that update their bid tabulations data more quickly than others, to ensure accuracy and up-to-date information for all states, the report lags behind by approximately one quarter. The time it takes for all states to update their information and then for Oman Systems to organize it dictates this lag. This is why, for instance, year-end 2016 data would not be complete until spring of 2017.

³ Market share is defined here as the share of concrete tons to total tons for the given quarter. A concrete tons measurement is used only for an apples-to-apples comparison to asphalt tons. While "ton" is a unit of weight, not volume, the term "volume" is used as a measurement of quantity and allows us to see what percentage of each paving material was let during a given quarter.

⁴ Based on lane miles Oman accounts for roughly 18% of total paving activity. (State highway share of total on lane miles.) Based on paving spending activity, Oman could account for 30% to 50% of total activity according to the Federal Highway Administration.